



2015 - 2016

Biennial Report



December 2016

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Acronyms

BWEC

Boater Waste Education Campaign

CCA

Coastal Coordination Act

CCAC

Coastal Coordination Advisory Committee

CEPRA

Coastal Erosion Planning and Response Act

CITs

Coastal Issue Teams

CMP

Texas Coastal Management Program

CNRAs

Coastal Natural Resource Areas

Committee

Technical Advisory Committee

Council

Coastal Coordination Council

CZMA

Coastal Zone Management Act

CZMP

Coastal Zone Management Program

DPA

Dune Protection Act

EPA

U.S. Environmental Protection Agency

FY

Fiscal Year

GBAN

Galveston Bay Action Network

GBF

Galveston Bay Foundation

GIS

Geographic Information System

GIWW

Gulf Intracoastal Waterway

GLO

Texas General Land Office

HRI

Harte Research Institute

IOCs

Issues of Concern

Land Commissioner

Texas Land Commissioner

Master Plan

Texas Coastal Resiliency Master Plan

NERRS

National Estuarine Research Reserve System

NOAA

National Oceanic and Atmospheric Administration

NPS

Nonpoint Source

OBA

Texas Open Beaches Act

OCS

Outer Continental Shelf

PSC

Permit Service Center

RMCs

Resource Management Codes

TAC

Texas Administrative Code

TAMU-CC

Texas A&M University-Corpus Christi

TAMUK

Texas A&M University-Kingsville

TCEQ

Texas Commission on Environmental Quality

Texas Sea Grant

Texas Sea Grant College Program

TPWD

Texas Parks and Wildlife Department

TWRI

Texas Water Resources Institute

TxDOT

Texas Department of Transportation

USACE

U.S. Army Corps of Engineers



Introduction

The value of the Texas coast stretches far beyond the 18 coastal counties and 6.1 million residents. With 367 miles of coastline and 3,300 miles of bayfront, the Texas coast is a vital component of the state and national economies, supporting energy and agricultural industries, the port system, commercial fisheries, and tourism.

Coastal Zone Management Program

In 1972, U.S. Congress passed the Coastal Zone Management Act (CZMA), which established the federal Coastal Zone Management Program (CZMP). The CZMP is a federal-state partnership that provides a basis for protecting, restoring, and responsibly developing the nation's diverse coastal communities and resources.

Coastal Coordination Act

In 1991, the Texas Legislature passed the Coastal Coordination Act (CCA) to solve concerns raised by coastal citizens regarding the need for a unified and comprehensive approach to the management of coastal natural resources and other complex coastal issues. The CCA called for the development of a program based on previously existing statutes and regulations and directed the Texas General Land Office (GLO) to develop a long-range, comprehensive plan for managing coastal natural resource areas (CNRAs) in cooperation with federal and state agencies, local governments, and coastal citizens.

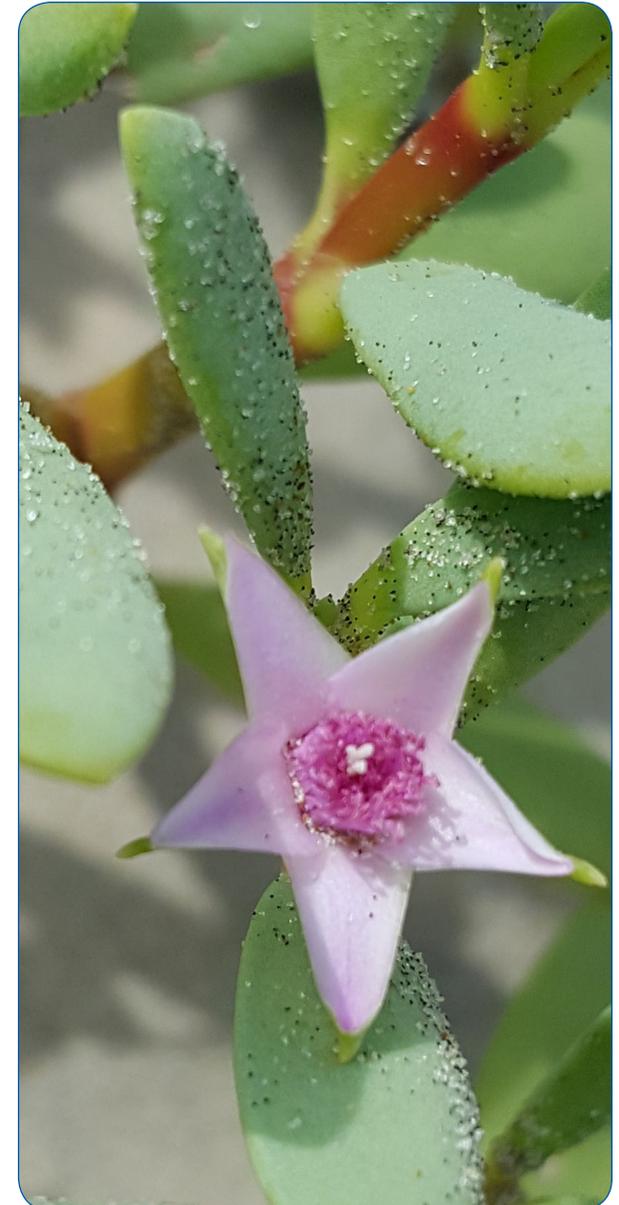
The CCA (1) set the boundaries of the state's coastal zone to include all or part of 18 coastal counties and more than 8 million acres of land and water; (2) established the framework for a federally approved coastal management program; and (3) created the Coastal Coordination Council (Council) to establish rules for certification for consistency with the goals and policies of the Texas Coastal Management Program (CMP) and to approve CMP funded projects.

In 2010, the Council underwent review by the Texas Sunset Advisory Commission (SAC). The SAC determined that while the state benefits from maintaining a federally approved coastal management program, the Council is no longer needed to administer it. In response, the 82nd Texas legislature passed and the Governor signed into law a bill to abolish the Council and transfer duties to the Texas Land Commissioner (Land Commissioner). The Land Commissioner is now authorized to make consistency determinations as required by Federal law.

The bill also required the Land Commissioner to establish a Coastal Coordination Advisory Committee (CCAC) with representatives from the networked agencies and public members appointed by the Land Commissioner.

Texas Coastal Management Program

The CMP was finalized in 1997 and accepted into the CZMP by the National Oceanic and Atmospheric Admin-



By the Numbers

6.5 Billion

Tax dollars generated by Texas ports

251 Billion

Value of goods exported from Texas ports in 2011

6 Billion

Value of agricultural commodities produced by Texas farmers and ranchers exported through Texas ports

\$240 Million

Value of seafood landed at Texas ports

14 Billion

Amount spent by tourists visiting the Texas coast, generating about 143,000 jobs¹

¹"Shoring Up The Future for the Texas Gulf Coast." Texas General Land Office. April 2013.

istration (NOAA). The CMP is a networked program that links existing regulations, programs, and local, state, and federal entities that manage various aspects of coastal resource use. The CMP's mission is to improve the management of the state's CNRAs designated to be of particular concern and ensure the long-term ecological and economic productivity of the Texas coast.

Coastal Coordination Advisory Committee

The CCAC is comprised of eight members representing state agencies and four members representing local government and citizens. The state agencies represented include: the GLO, Railroad Commission of Texas, Texas Department of Transportation (TxDOT), Texas Commission on Environmental Quality (TCEQ), Texas Parks and Wildlife Department (TPWD), Texas State Soil and Water Conservation Board, Texas Water Development Board, and the Texas Sea Grant College Program (Texas Sea Grant). The Land Commissioner-appointed citizen members represent agriculture, coastal businesses, coastal governments, and coastal residents.

The CCAC manages elevated coastal issues that concern multiple Coastal Issue Teams (CITs) and consistency issues. In Fiscal Year (FY) 2015 and FY 2016, the CCAC did not meet. The GLO provides the CCAC with quarterly CMP updates.

Coastal Issues Team

Under the CCAC, CITs meet to coordinate on cross-agency issues, including water quality; CMP grants; CMP coastal long-term planning; and regulatory/permitting.

Water Quality CIT

The Water Quality CIT is actively working towards approval of the Coastal Nonpoint Source (NPS) Pollution Control Program, with a current focus on measures related to onsite sewage facilities/onsite sewage disposal systems, storm water roadway, and watershed protection.

CMP Grants CIT

Each year, the CMP awards approximately \$1.8 million in grant funding. The CMP Grants CIT reviews grant pre-proposals and provides comments to applicants and reviews and scores final applications.

CMP Coastal Long-term Planning CIT

The Coastal Long-term Planning CIT members participate in the development of the Section 309 Assessment and Strategies Report and serve as members of the Technical Advisory Committee (Committee) for the Texas Coastal Resiliency Master Plan (Master Plan).

Regulatory/Permitting CIT

The Regulatory/Permitting CIT focuses on federal consistency issues and information exchange on consistency reviews.

<p>1972</p> <p>U.S. Congress passed the CZMA, establishing the CZMP.</p>	<p>1991</p> <p>The Texas Legislature passed the CCA.</p>	<p>1997</p> <p>The CMP was finalized and accepted into the CZMP.</p>	<p>2010</p> <p>The Council was abolished and its duties transferred to the Land Commissioner. The CCAC was established with representatives from eight networked agencies and four public members.</p>
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Coastal Coordination Advisory Committee



Sea Grant
Texas
AT TEXAS A&M UNIVERSITY
TexasSeaGrant.org



Railroad Commission of Texas



Texas Department of Transportation



TEXAS PARKS & WILDLIFE



TSSWCB
Texas State Soil and Water Conservation Board



TCEQ



Texas Water Development Board



TEXAS GENERAL LAND OFFICE
ESTABLISHED 1830

Commissioner-appointed committee members include a coastal resident representative, coastal business representative, agriculture representative and a local elected official.

Program Goals



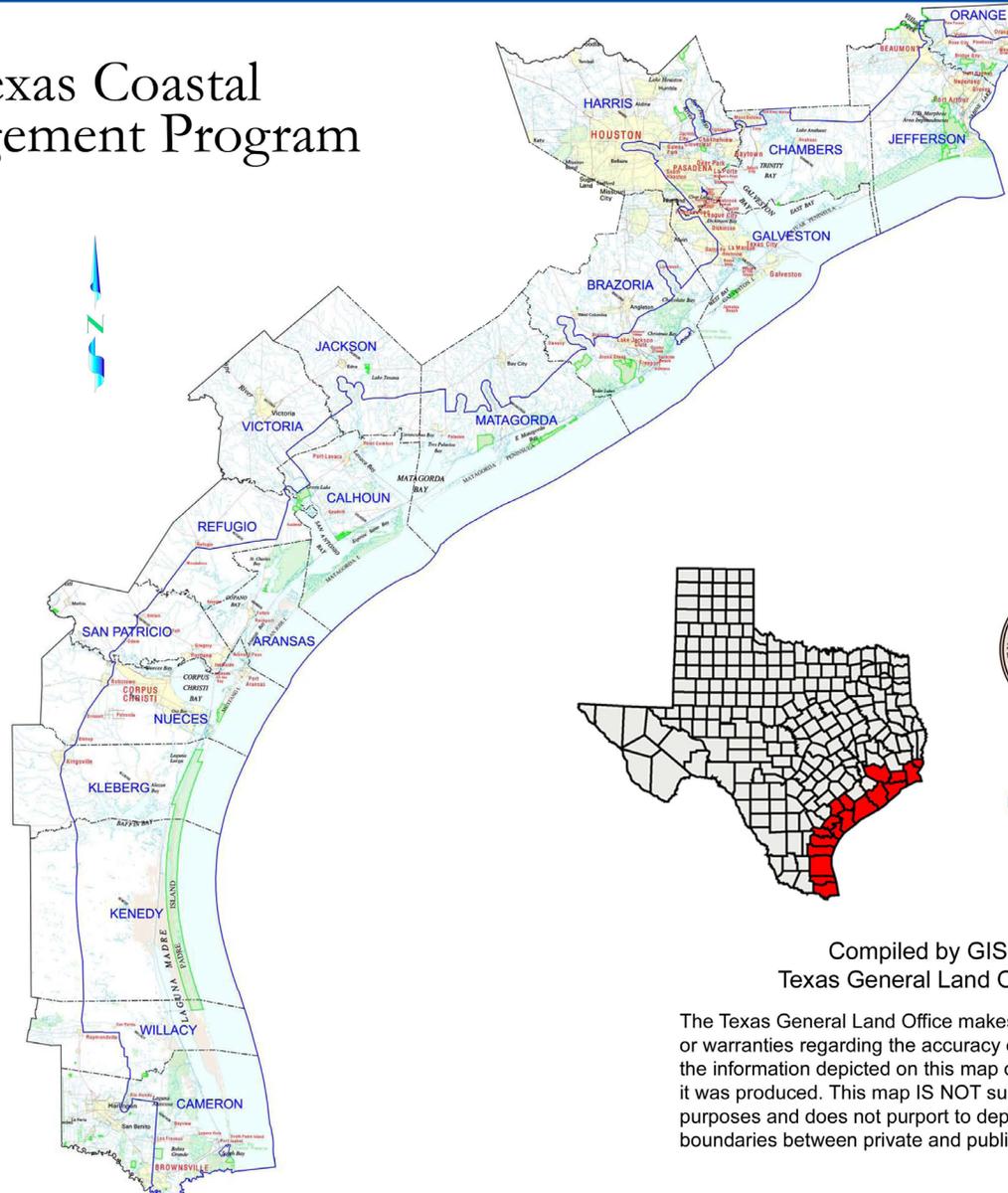
Texas Coastal Management Program Goals

- ◆ To protect, preserve, restore, and enhance the diversity, quality, quantity, functions, and values of CNRAs;
- ◆ To ensure sound management of all coastal resources by allowing for compatible economic development and multiple human uses of the coastal zone;
- ◆ To minimize loss of human life and property due to the impairment and loss of protective features of CNRAs;
- ◆ To ensure and enhance planned public access to and enjoyment of the coastal zone in a manner that is compatible with private property rights and other uses of the coastal zone;
- ◆ To balance the benefits from economic development and multiple human uses of the coastal zone, the benefits from protecting, preserving, restoring, and enhancing CNRAs, the benefits from minimizing loss of human life and property, and the benefits from public access to and enjoyment of the coastal zone;
- ◆ To coordinate agency and subdivision decision-making affecting CNRAs by establishing clear, objective policies for the management of CNRAs;
- ◆ To make agency and subdivision decision-making affecting CNRAs efficient by identifying and addressing duplication and conflicts among local, state, and federal regulatory and other programs for the management of CNRAs;
- ◆ To make agency and subdivision decision-making affecting CNRAs more effective by employing the most comprehensive, accurate, and reliable information and scientific data available and by developing, distributing for public comment, and maintaining a coordinated, publicly accessible geographic information system (GIS) of maps of the coastal zone and CNRAs at the earliest possible date;
- ◆ To make coastal management processes visible, coherent, accessible, and accountable to the people of Texas by providing for public participation in the ongoing development and implementation of the CMP; and
- ◆ To educate the public about the principal coastal problems of state concern and technology available for the protection and improved management of CNRAs.



Program Map

Texas Coastal Management Program



Compiled by GIS
Texas General Land Office

The Texas General Land Office makes no representations or warranties regarding the accuracy or completeness of the information depicted on this map or the data from which it was produced. This map IS NOT suitable for navigational purposes and does not purport to depict or establish boundaries between private and public land.

Program Budget



CZMA funds ensure effective administration of the CMP, especially activities to implement and enforce program policies, authorities, and other management techniques. Each year, the GLO receives approximately \$2.5 million under the CZMA to administer the CMP. The CZMA provides funding for three programs: the coastal resource improvement program (§306/§306A), the program enhancement program (§309), and the state's Coastal NPS Pollution Control Program (§310). The state is required to match the §306/§306A and §310 funds at a 1:1 ratio; however, a match is not required for §309.

Section 306/306A Funding

NOAA provided the state \$1,996,000 in FY 2015 and \$2,125,000 in FY 2016 in §306/§306A funding to administer the CMP. Approximately 84 percent (\$3,480,000) of the amount received in §306/§306A funding (\$4,121,000) was awarded to eligible entities for coastal projects through a competitive grant process. Grant subrecipients were required to contribute a 25 percent match or 50 percent match, depending on whether a cash match was provided. The state retained approximately 16 percent (\$641,000) for program administration, matching this amount with salaries, fringe benefits, and indirect costs.

Section 309 Funding

NOAA provided the state \$520,000 in FY 2015 and \$515,000 in FY 2016 in §309 funding to develop and carry out improvements that strengthen the CMP and implement program changes. Section 309 funding must support attainment of one or more of the eight coastal zone enhancement objectives: 1) wetlands, 2) coastal hazards, 3) public access, 4) marine debris, 5) cumulative and secondary impacts, 6) ocean resources, 7) energy and government facility siting, and 8) aquaculture.

Section 310 Funding

NOAA did not provide the state §310 funding for implementation of the Coastal NPS Pollution Control Program in FY 2015/FY 2016.

FY 2015

§306/§306A	State	Sub-recipients	Total
Federal Amount Awarded	\$256,000	\$1,740,000	\$1,996,000
State/Subrecipient Match	\$690,136	\$1,305,864	\$1,996,000
Subtotal	\$946,136	\$3,045,864	\$3,992,000
§309	State	Sub-recipients	Total
Federal Amount Awarded	\$520,000	\$0	\$520,000

FY 2016

§306/§306A	State	Sub-recipients	Total
Federal Amount Awarded	\$385,000	\$1,740,000	\$2,125,000
State/Subrecipient Match	\$805,222	\$1,319,778	\$2,125,000
Subtotal	\$1,190,222	\$3,059,778	\$4,250,000
§309	State	Sub-recipients	Total
Federal Amount Awarded	\$515,000	\$0	\$515,000



Highlights and Significant Events

CMP 312 Review

The CZMA requires NOAA to periodically evaluate the CMP to assess needs and accomplishments and identify recommendations for program enhancements. On March 23, 2015, NOAA provided the final 312 findings, recognizing the state's good faith effort to obtain full approval of its conditionally approved Coastal NPS Pollution Control Program and identifying necessary actions for compliance. On September 28, 2015, the GLO and the TCEQ submitted a work plan to NOAA, which included interim benchmarks and a timeline to meet program goals and objectives.

Texas Coastal Nonpoint Source Pollution Control Program

GLO and TCEQ staff continue coordination efforts to develop and implement a Coastal NPS Pollution Control Program plan that meets 6217(g) conditions necessary for full approval, specifically focusing on addressing outstanding management measures related to:

- ◆ On-Site Sewage Disposal Systems Impact to Nitrogen Limited Waters;
- ◆ New Development;

- ◆ Site Development;
- ◆ Off-system Roads, Highways, and Bridges (non-TXDOT);
- ◆ Operating On-Site Sewage Disposal Systems (on-site inspection);
- ◆ Watershed Protection; and
- ◆ Existing Development.

In FY 2017 and FY 2018, the GLO and TCEQ plan to iteratively submit revisions to the management measures for NOAA and U.S. Environmental Protection Agency (EPA) review. The revised measures will ensure conformance to CZMP guidance and incorporate policies and mechanisms for successful implementation. The schedule below establishes priorities and target dates for fulfilling the conditions of each management measure. The GLO anticipates the On-Site Sewage Disposal Systems Impact to Nitrogen Limited Waters measure will be submitted no later than February 2017. The GLO is combining the New Development and Site Development measures, which will be submitted by March 2017. The Off-system Roads, Highways, and Bridges (non-TXDOT) measure will be submitted by March 2017. The Operating On-Site Sewage Disposal Systems (on-site inspection)

measure will be submitted by April 2017. The Watershed Protection measure will be submitted by July 2017. The Existing Development measure will be submitted by December 2017.

CMP Rule Revisions

The GLO continues revisions to CMP rules and procedures in Title 31 of the Texas Administrative Code (TAC), Chapters 501-506, to reflect the abolition of the Council and transfer of Council functions to the GLO and the Land Commissioner. Following circulation through the CCAC, the GLO plans to publish the proposed rule changes in the Texas Register for public review and comment. The GLO will consult with NOAA on Chapter 506 (Federal Consistency) revisions.

Resource Management Code Updates

State and federal resource agencies assign Resource Management Codes (RMCs) to state-owned submerged lands, including bays, estuaries, and the Gulf of Mexico. RMCs promote best management practices for activities within state-owned land tracts to minimize adverse impacts to sensitive natural resource areas.





In partnership with the Harte Research Institute (HRI), the GLO completed a comprehensive review and update of the RMCs. A Data Standards Committee was formed to provide RMC definition updates and incorporate the associated data layers. The Data Standards Committee examined and redefined 35 codes, identified data sets

applicable to each code and compiled and analyzed 141 datasets to develop code-assigning criteria for integration into a GIS viewer. The new RMCs are completely data driven, providing for less cumbersome updates. Additionally, the RMCs use a GIS mapping platform, enhancing accuracy.

GLO staff developed a beta version of the RMC viewer for incorporation onto the GLO website. The RMC viewer provides the best available information to support coastal resource management decisions and assist resource managers, planners, and industry with the permitting process. The RMC viewer resides on the GLO website at <http://www.glo.texas.gov/energy-business/oil-gas/mineral-leasing/leasing/index.html>.

The GLO continues to work with HRI to incorporate additional datasets into the viewer, enhance user functionality, and build upon previously identified enhancements.

Texas Shores Beach Access Point Update

In July 2015, the GLO released the TxCoasts.com web application, an interactive map and website that allows the public to view beach and bay access point data. The application provides site and access information, locations, activities, available facilities, and photos of each access point. In June 2016, the application received an

award for “Use of an API in a Map” at the Esri User Conference in San Diego, California.

Section 309 Assessment & Strategies Report Development

Section 309 of the CZMA establishes a voluntary grants program to encourage states with federally approved coastal management programs to identify, develop, and implement strategies to strengthen and enhance their programs. As a condition of receiving 309 funding, the GLO must submit a Section 309 Assessment & Strategies Report to NOAA every five years. The report assesses the CMP, identifies program priorities, and proposes strategies that lead to program enhancements for the subsequent five years.

HRI assisted GLO staff in the development of the FY 2016-2020 report. The report includes the following strategies to address identified program enhancements: Assessment & Data Collection to Enhance Permitting, Leasing, and Monitoring for Coastal Activities; Incorporation of Ecosystem Services into Grant Processes; Beach and Dune Protection; Living Shoreline Protection; Data Collection, Technical Assistance and Planning to Mitigate Coastal Hazards; and Implementation of Coastal NPS Management. NOAA reviewed and approved the FY 2016-2020 report. The GLO is currently initiating project efforts.



Program Coordination

The CMP serves as an umbrella for the management of coastal resources along the Texas Coast. Through networking with state and federal natural resource agencies and other entities, the effectiveness of protection, restoration, and enhancement of CNRAs can be accomplished.

Regulatory Partnerships Interagency Coordination Teams

In the early 1990s, the U.S. Army Corps of Engineers (USACE) developed the Interagency Coordination Team (ICT) concept as part of the Houston-Galveston Navigation Channel (HGNC) Expansion Project, which involved deepening and widening the Houston Ship Channel and finding advantageous uses for the dredged material. The HGNC ICT, consisting of state and federal resources agencies and the Port of Houston Authority, was created to address key environmental issues and concerns associated with the project. Other non-governmental organizations, including the Galveston Bay Foundation (GBF), local residents, commercial fishermen, and recreational boaters, participated in ICT meetings, providing advice and feedback. In an effort to identify solutions to key issues associated with the project, the ICT formed several subcommittees, composed of ICT mem-



bers with scientific expertise in various environmental disciplines. Subcommittees include the Beneficial Uses Group, the Oyster Committee, Cumulative Impacts Group, and the Benthic Recovery Group. The Beneficial Uses Group monitors the progress of marsh restoration sites created from material dredged from the navigation project.

The success of the HGNC ICT led USACE to the form additional ICTs for other large and potentially controversial projects such as: the Gulf Intracoastal Waterway (GIWW) Laguna Madre maintenance dredging; GIWW Welder Flats-Aransas National Wildlife Refuge whooping crane habitat protection; the Corpus Christi Ship Channel Improvement Project; Sabine-Neches Waterway Improvement Project; and the Sabine Pass to San Luis Pass Shoreline Erosion Project.

Open Beach and Dune Protection Program

The Beach and Dune Protection Program enforces the Open Beaches Act (OBA), Dune Protection Act (DPA), and related administrative rules to ensure protection of CNRAs and accessibility for all beach users.

Funding Partnerships Coastal Impact Assistance Program

The Energy Policy Act of 2005 authorized the Coastal Impact Assistance Program (CIAP), which is administered by U.S. Fish and Wildlife Service and the GLO. CIAP is funded with \$109,269,690 of federal royalties from offshore oil and gas leases to assist states that have either supported or been impacted by oil and gas exploration and development along the Outer Continental Shelf (OCS). CIAP funds are used for projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands; mitigation of damage to fish, wildlife, or natural resources; planning assistance and administrative costs; implementation of a federally-approved marine, coastal, or comprehensive conservation management plan; and mitigation of the impact of OCS activities.

Coastal Erosion Planning and Response Act Program

In 1999, the Texas Legislature established the Coastal Erosion Planning and Response Act (CEPRA) program to reduce and minimize erosion impacts to public beaches and dunes, wetlands, the GIWW, homes, businesses, and public infrastructure, thereby protecting the state's natural resources and economic future. As a cost-sharing program, CEPRA funding is used to leverage federal, state, local, and private resources. The CEPRA program matches up to 75 percent of funding for beach nourishment and dune restoration projects and up to 60 percent of funding for wetland and habitat restoration projects, shoreline protection projects, and erosion studies.

Gulf of Mexico Energy Security Act Program

In 2006, President Bush signed the Gulf of Mexico Energy Security Act (GOMESA) into law to enhance the OCS oil and gas leasing activities and revenue sharing in the Gulf of Mexico. Alabama, Louisiana, Mississippi and Texas share lease revenues for coastal restoration and conservation projects and hurricane protection. The GLO administers the funds for projects along the Texas coast.

Program Partnerships Texas Beach Watch Program

The EPA funds the Texas Beach Watch Program for water quality monitoring at Texas recreational beaches.

Results of water sampling and advisories are posted on the Texas Beach Watch website at www.TexasBeachWatch.com.



Mission-Aransas National Estuarine Research Reserve System

In 2006, NOAA included the Mission-Aransas National Estuarine Research Reserve System (NERRS) within its network of coastal sites designated for research, monitoring, education, and stewardship. The University of Texas, Marine Science Institute manages the Mission-Aransas NERRS, composed of approximately 190 acres of coastal habitat, including tidal flats, seagrass beds, mangroves, and oyster reefs. Through the CZMA, NOAA provides funding, guidance, and assistance to the Mission-Aransas NERRS to protect and study the estuarine system. Three GLO representatives serve on the Mission-Aransas NERRS Advisory Board, collaborating



with partners on issues related to coastal resources, energy, and coastal leasing.

Texas Sea Grant College Program

Texas Sea Grant is a partnership between NOAA and Texas A&M University that addresses issues within coastal communities to support healthy coastal environments and economies. Texas Sea Grant provides scientific research of coastal and marine resources and conducts outreach to educate the public and guide communities in decision making. A GLO representative serves on the Texas Sea Grant Advisory Committee, collaborating with partners to improve the understanding and stewardship of Texas coastal and marine resources.

Gulf of Mexico Alliance

The Gulf of Mexico Alliance (GOMA) is a partnership between federal and state agencies, academic organizations, non-profit organizations, and businesses in Alabama, Florida, Louisiana, Mississippi, and Texas. GOMA provides an opportunity for partners to identify and discuss the Gulf of Mexico's priorities and needs, promote collaboration between scientific and technical experts and resource managers, and minimize duplicative efforts. GOMA has identified priority issues for the Gulf, including water quality, nutrient impacts, habitat conservation and restoration, ecosystem integration and assessment, coastal resilience, and environmental education.

Galveston Bay Estuary Program

As a non-regulatory program administered through TCEQ, the Galveston Bay Estuary Program (GBEP) coordinates and facilitates partnerships to implement the Galveston Bay Plan and provides comprehensive ecosystem management to preserve the Bay's multiple uses. GBEP partners with local, state, and federal governments, regional authorities, non-government organizations, academic organizations, recreational fisheries, businesses, and industries to identify issues, solutions, and actions to support the Bay's needs. A GLO representative serves on GBEP's coordinating body, the Galveston Bay Council, assisting in plan implementation and ensuring program effectiveness.

Coastal Bend Bays and Estuaries Program

The Coastal Bend Bays and Estuaries Program (CBBEP) is a non-profit organization dedicated to improving the health of bays and estuaries in the Texas Coastal Bend. CBBEP oversees a voluntary partnership, consisting of resource managers, local, state, and federal governments, bay users, environmental organizations, and private industries and ensures implementation of the Coastal Bend Bays Plan. GLO staff serve on various plan implementation teams, providing oversight and guidance for ongoing projects, monitoring, and research initiatives, identifying program needs, and recommending projects for inclusion in CBBEP's annual work plans.



Coastal Long-Term Planning and Studies

Coastal Resiliency Forums

In December 2014, the GLO hosted three resiliency forums along the Texas coast. The meetings were part of a broad, ongoing effort to raise statewide awareness of the coast's tremendous value and increasing economic and environmental vulnerabilities, resulting from population growth, increased storm intensity, and shoreline erosion.

During the workshops, community leaders discussed coastal concerns, tools, and technologies to assist in planning for changing conditions and future storm hazards along the coast. Discussions centered on Texas coastal economic and environmental health, particularly the management of critical infrastructure and reliance on healthy bays, wetlands, and barrier islands for flooding protection and local economies.

The three workshops drew nearly 100 attendees, including representatives from state legislative offices, city and county officials (commissioners, planners, and emergency readiness and response coordinators) and other community representatives, and local citizens.

Texas Coastal Resiliency Master Plan

The GLO is developing the Master Plan, a long-term framework intended to mitigate damage from future coastal natural disasters and preserve and enhance the state's coastal natural resources and assets. To assist with the Master Plan development, the GLO contracted with AECOM for engineering services, HRI for data analysis and mapping, and Crouch Environmental for facilitation of education and outreach engagement with coastal partners and stakeholders. The GLO formed the Committee, composed of more than 150 coastal experts from the CMP-networked agencies, federal agencies, universities, local governments, non-profits, engineering firms, port representatives, and regional trusts, foundations, and partnerships, to assess the issues of concern (IOCs) along the coast and identify potential solutions to improve resiliency for coastal communities.



In May 2016, a Committee meeting was held via WebEx to provide an overview of the Master Plan and define the Committee roles. Following the WebEx, the GLO sent Committee members an online survey, soliciting input and requesting assistance in identifying the coastal IOCs in 68 coastal sub-regions. AECOM conducted a literature review to compile proposed projects that could potentially address the identified IOCs along the coast. In July 2016, regional Committee meetings were held in Corpus Christi, Texas City, Victoria, and Port Isabel to evaluate projects based on the level of benefit in addressing identified critical IOCs in the sub-region; the level of regional priority; and the level of feasibility. During the meetings, gap projects were solicited from the Committee to address IOCs and solutions not previously evaluated. These gap projects were compiled and sent to the Committee for evaluation via an online survey.

Project information was compiled for technical and socio-economic analysis. The following strategies were developed to characterize projects based on project type and IOCs addressed: 1) restoring Texas's beaches and dunes; 2) bay shoreline stabilization and estuarine wetland restoration (living shorelines); 3) stabilizing the GIWW 4) freshwater wetland and coastal uplands

conservation 5) delta and lagoon restoration 6) oyster reef creation and restoration 7) rookery island creation and restoration; and 8) plans, policies, and programs. In coordination with the GLO's GIS Team, AECOM is developing a geo-spatial database to house project information. In November 2016, findings from the Committee meetings and technical analysis were presented to the Committee and local elected officials in a series of meetings in Port Isabel, Corpus Christi, Beaumont, Houston, and Victoria.

Currently, GLO staff is working with an outreach firm to create materials to effectively communicate the value of the Texas coast, the role of the GLO in coastal resiliency, the outcomes of the Master Plan, and the importance of executing the identified solutions to reduce vulnerabilities from coastal hazards. The Master Plan will be presented to the 85th Texas Legislature in 2017 to enhance awareness and implement possible solutions to the state's coastal vulnerabilities from natural hazards.

Coastal Texas Study

In November 2015, the USACE, in partnership with the GLO, began assessing the feasibility of constructing



coastal storm risk management and ecosystem restoration projects along the Texas coast. The Coastal Texas Study is estimated to cost \$20 million with a 50/50 federal to non-federal cost share split. The study will involve engineering, economic, and environmental analyses on approximately 10-12 large-scale projects, which U.S. Congress may consider for authorization and funding. The feasibility study and report will be completed in 2021.



Sabine Pass to Galveston Bay Study

The USACE and GLO are conducting the Sabine Pass to Galveston Bay Study to evaluate potential upgrades to existing Coastal Storm Risk Management systems in Brazoria and Jefferson counties and construction of a proposed Coastal Storm Risk Management system for Orange County. The feasibility analyses will determine if there is a federal interest in funding projects in the identified regions. The final report is scheduled for completion in March 2017.



State and Federal Consistency

The CZMA allows states to operate coastal management programs through a single permitting agency or by coordinating existing regulatory authorities through a networked program. Texas combines existing regulatory authorities and builds on the strength of those authorities utilizing the networked program approach.

CMP is intended to make coastal decision-making processes more effective and efficient. Each networked agency ensures its proposed actions that may adversely affect CNRAs are consistent with CMP goals and policies, through the exercise of statutory authorities. The CCA requires networked agencies and subdivisions to comply with a uniform set of program goals and policies when conducting activities in the coastal zone.

Consistency Review

The consistency review process ensures the actions of state and federal agencies and limited local government actions are consistent with CMP goals and policies. Three consistency review components exist in the CMP: local consistency, state consistency, and federal consistency.

Local Consistency Review

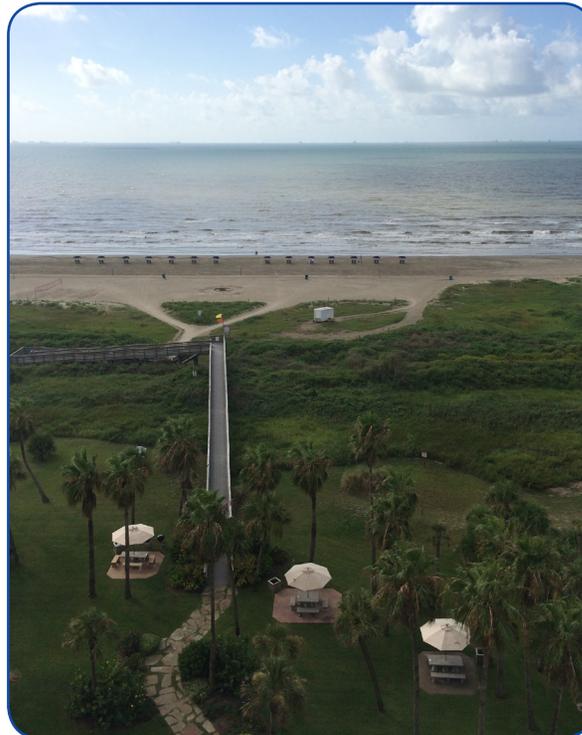
The issuance of dune protection permits and beachfront construction certificates are the only local government actions that may adversely affect CNRAs. Local government beach/dune permitting authorities that have certified or conditionally certified dune protection and beach access plans are responsible for issuing dune protection permits and beachfront construction certificates for construction activities in the beach/dune system.

The GLO reviews all dune protection permits and beachfront construction certificate applications to ensure compliance with the OBA, DPA, and the GLO Beach Access and Dune Protection Rules. Permitted construction activities must be consistent with CMP goals and policies. For dune protection permits, local governments

must certify that the proposed activity will not materially weaken any dune, materially damage any dune vegetation, or reduce the effectiveness of any dune as a means of protection against erosion and high wind and water. For beachfront construction certificates, local governments must certify that the proposed activity is consistent with the beach access portion of the approved dune protection and beach access plan and determine that the activity does not interfere with or otherwise restrict the public's right to access and use the public beach easement.

FY 2015 – 497 permits reviewed

FY 2016 – 499 permits reviewed



State Consistency Review

The CMP provides interagency coordination on significant policy issues and major coastal development projects, allowing networked agencies to manage their own programs on a day-to-day basis. Certification of an agency's rules is the primary tool for ensuring a networked agency's rules governing actions subject to the CMP are consistent with the program. Because an agency must comply with its own rules, incorporating the goals and policies into agency rules ensures the agency will exercise its networked authorities consistent with the CMP. If an agency's rules are consistent, then its activities should be consistent.

Once an agency's rules are certified, the agency may adopt consistency review thresholds limiting the CMP's authority to review its actions. The agencies are responsible for enforcing the provisions of the CMP and are authorized to enforce the permits or authorizations issued.

Networked agencies are those with activities or rules that affect or protect CNRAs. The affected state agencies include the School Land Board, the Boards for Lease of State-owned Lands, the Public Utility Commission of Texas, the Texas Historical Commission, the Texas State Soil and Water Conservation Board, the Railroad Commission of Texas, GLO, TCEQ, TxDOT, and TPWD.

During FY 2015 and FY 2016, the GLO received quarterly reports from the networked state agencies for permitting actions, rulemakings, and enforcement actions.

FY 2015

In FY 2015, the reporting state agencies received 1,883 permit applications, of which 1,415 were reported as approved without conditions, and 200 were reported as approved with conditions. The state agencies submitted and adopted 13 rulemakings. In addition, the state agencies reported undertaking 421 enforcement actions.

FY 2016

During FY 2016, the GLO received quarterly reports from the networked state agencies for permitting actions, rulemakings, and enforcement actions. The reporting state agencies received 1,716 permitting applications, of which 998 were approved without conditions, and 452 were approved with conditions. The state agencies submitted and adopted 11 rulemakings. In addition, the state agencies reported undertaking 345 enforcement actions.

Federal Consistency Review

Approval of the CMP gave Texas the authority to review proposed federal actions and activities that are located in or may affect land and water resources in the Texas coastal zone. This process, called federal consistency review, ensures the state's interest is fairly represented and allows the state the opportunity to provide input into policies, procedures, or actions and activities that may affect the management of coastal areas, including:

- ◆ Projects requiring a federal license or permit;
- ◆ Direct activities proposed by federal agencies; and
- ◆ Federal financial assistance to state and local governments.

Federal actions and activities within or outside the Texas coastal zone that affect CNRAs must be consistent with enforceable policies of the CMP to the maximum extent practicable. If the state finds a given action or activity to be inconsistent, with a few exceptions the action cannot be undertaken.

Federal actions and activities are evaluated for potential impacts to CNRAs. During FY 2015 and FY 2016, all of the proposed federal agency actions, activities, or financial assistance projects reviewed by staff and considered by the Land Commissioner were deemed consistent with CMP goals and policies.

In January 2014, Revesser, LLC applied for a USACE permit (SWG-2005-00522) to develop a 264-acre canal subdivision. The Regulatory/Permitting CIT discussed the project and identified consistency issues related to the mitigation of proposed impacts to state-owned submerged land; the placement and amount of dredged/

excavated material; and the potential water quality impacts. The CCAC members referred the project to the Land Commissioner for further consistency review and a final consistency determination. A hearing for the consistency review was scheduled for June 10, 2014. Approximately one week prior to the hearing, the USACE determined that additional wetlands existed at the site and the project would be evaluated under Section 404 of the Clean Water Act. On June 6, 2014, the applicant formally withdrew the request for a CMP consistency determination and canceled the public hearing.

In 2016, the Regulatory/Permitting CIT was notified of a USACE Section 10 Rivers and Harbors Act permit (SWG-2005-00552) for a 205-acre canal subdivision on Mustang Island. The USACE posted the permit application for public notice and comment from September 8, 2016 – October 10, 2016. The application, which is subject to the goals and policies of the CMP, generated significant public interest during the public comment period. The Regulatory/Permitting CIT is scheduling a conference call to identify and discuss consistency issues.

Federal Agency Actions

A federal agency action is a federal license or permit issued by a federal agency that represents the proposed federal authorization, approval, or certification needed by the applicant to begin an action. For example, a USACE permit for the construction of a pier or boat dock is considered a federal action. During FY 2015, a total of 300 actions requiring a federal license or permit were reviewed. During FY 2016, a total of 224 actions requiring a federal license or permit were reviewed.

Federal Agency Activities and Development Projects

A federal agency activity is a function performed by or for a federal agency in exercise of its statutory responsibility. This includes the planning, construction, modification, or removal of a public work, facility, or any other structure, and the acquisition, use, or disposal of land or water resources. For example, maintenance dredging of a navigation channel or changes in federal permitting processes are considered federal activities. During Federal FY 2015, nine federal activities were reviewed for consistency, and during Federal FY 2016, eight federal activities were reviewed for consistency.



Federal Funding Assistance

Financial assistance projects are state or local applications for federal funding in the form of grants, contractual agreements, and loans. For example, a request for funding for a flood control project is considered a request for financial assistance. Federal agencies may not grant federal assistance until the state CMP concurs. During FY 2015, 964 financial assistance projects were reviewed. During FY 2016, 176 financial assistance projects were reviewed.

Permitting Assistance

Prior to the CMP, overlapping jurisdiction between federal and state agencies created redundancies and a complicated application process for common projects, such as residential piers or placement of fill material to construct a building. To mediate the problem, the CMP streamlined the permitting process and improved agency coordination.

Permitting Assistance Group

The Permitting Assistance Group (PAG) was formed to identify and address permitting obstacles; encourage interagency cooperation; offer the public a single point-of-contact for project-specific advice during the permit application process; and serve as a liaison to the CCAC on permitting issues. The PAG is comprised of CCAC members and representatives of federal and state agencies that participate in the permitting process as applicants, permitting entities, or commenters.

The PAG addresses requests for preliminary consistency



Joint Permit Application Form

In an effort to reduce redundancies and streamline the permitting process, Joint Permit Application Forms (JPAFs) were created, providing one consolidated application for permits/authorizations from multiple agencies. JPAFs minimize the length of the permitting process and reduce confusion among applicants regarding which permits are required for a project.

Joint Evaluation Meetings

State and federal resource agency representatives routinely attend monthly Joint Evaluation Meetings. The meetings, sponsored by the USACE, provide guidance to applicants on CMP policies and agency permitting requirements.

Permit Service Center

The Permit Service Centers (PSCs) provide permitting assistance to small businesses, private individuals, and

cy determinations. A regulatory work group was established to discuss various issues, such as jurisdictional issues and CMP determinations for larger (structure-only) projects. The PAG did not meet in FY 2015 or FY 2016.

FY 2015 and FY 2016 JPAFs Received

(by quarter)

Quarter	FY 2015	FY 2016
1	38	37
2	45	35
3	66	51
4	36	43
Year	185	166

local government organizations for proposed projects within the coastal zone and JPAF boundaries. PSC staff assists applicants in submitting administratively complete JPAFs, providing technical guidance for permits within the coastal zone boundary and troubleshooting applications prior to submission to regulatory agencies. During the regulatory agency review, PSC staff monitors the permit applications, identifies interagency disagreements that hinder permit issuance, and facilitates conflict resolution between permitting agencies and applicants. This process reduces the length of permit processing and ensures review efficiency.

The PSCs met the Legislative Budget Board target of 110 JPAFs. The number of JPAFs can be attributed to the continuation and expansion of the Structure Registration/General Permit agreement between the USACE Regulatory Branch and GLO's Coastal Field Operations Program.

During the FY 2015 reporting period, the PSC assisted 186 applicants and processed 173 JPAFs. The lower coast office processed 58 JPAFs, and the upper coast office processed 115 JPAFs. During the FY 2016 reporting period, the PSC assisted 169 applicants and processed 166 JPAFs. The lower coast office processed 50 JPAFs, and the upper coast office processed 116 JPAFs.

How to Reach Us

The PSC has two locations and may be reached at the following addresses:

Upper Coast

Texas A&M University-Galveston
Powell MERC Bldg., 3027, Suite 135
P.O. Box 1675
Galveston, TX 77553-1675
Toll-free: (866) 894-7664
Phone: (409) 741-4057
Fax : (409) 741-4010

Lower Coast

Texas A&M University-Corpus Christi
6300 Ocean Drive, TAMU-CC
Carlos F. Truan Natural Resources
Center, Ste 2800
Corpus Christi, TX 78412- 5848
Toll-free: (866) 894-3578
Phone: (361) 825-3050
Fax: (361) 825-3040

permitting.assistance@glo.texas.gov

www.glo.texas.gov/psc

Grant Administration



CMP Cycles #16, #17, #18, and #19

In December 2014 and December 2015, CMP Cycle #16 and CMP Cycle #17, respectively, were closed out with the final drawing of funds and submittal of remaining deliverables to NOAA. GLO staff is currently working with sub-recipients to close out CMP Cycle #18. For CMP Cycle #19 and CMP Cycle #20, GLO staff is conducting general oversight to ensure all projects are completed in a timely manner and within budget.

CMP Cycle #20

CMP Cycle #20 grant applications were due on September 24, 2014. The CMP Review Team reviewed and scored 37 applications. Commissioner George P. Bush approved 23 projects for funding, including 15 §306 projects and eight §306A projects. Following NOAA's approval, the GLO executed the sub-recipient contracts for the selected projects, which commenced on October 1, 2015. Currently, GLO staff is conducting general oversight of the CMP and grant tasks to ensure all projects are com-

pleted in a timely manner and within budget.

CMP Cycle #21

The GLO mailed postcards to approximately 700 individuals and 300 elected officials within the CMP boundary, notifying potential applicants of the upcoming grant funding and informational workshops. Public notice of the availability of the CMP funds and of the grant workshops was published in the Texas Register for a 30-day period.

Grant workshops were held in three coastal cities to help potential applicants understand the grant guidance and application packet. The workshops provided information on changes to the grant program and an opportunity to discuss specific project ideas. Although applicants were not required to attend a workshop, it was strongly encouraged for first-time and/or inexperienced applicants. In total, 30 interested applicants attended the workshops.

The deadline to submit final applications was September 23, 2015. A total of 55 applications were submitted, one of which was deemed administratively incomplete and was not considered for funding. The final applications were compiled and submitted to the CMP Review Team. On December 3, 2015, the CMP Review Team met to discuss the final scores and recommend a list of projects to the Land Commissioner for funding.

On January 25, 2016, the GLO's Procurements and Grants Review Committee voted to recommend the list of selected projects to the Land Commissioner for approval. On February 1, 2016, Commissioner George P. Bush approved 16 projects for funding, including 11 §306 projects and five §306A projects.

Following NOAA's approval, the GLO executed the sub-recipient contracts for the selected projects, which commenced on October 1, 2015. Currently, GLO staff is conducting general oversight of the CMP and grant tasks to ensure all projects are completed in a timely manner and within budget.

CMP Cycle #22

The GLO mailed postcards to approximately 700 individuals and 300 elected officials within the CMP boundary, notifying potential applicants of the funding opportunity and the upcoming grant workshops. A public notice was published in the Texas Register for a 30-day period.

Grant workshops were held in three coastal cities to help potential applicants understand the grant guidance and application packet. The workshops provided information on the CMP program and an opportunity to discuss specific project ideas with staff. Although applicants were not required to attend a workshop, it was strongly encouraged for first-time and/or inexperienced applicants. In total, 19 interested applicants attended the workshops.



CMP Cycle #21 workshop dates and locations:

Port Isabel – May 7 at 9:30 a.m.

Artisan at Port Isabel

106 Port Road, Clubhouse

Corpus Christi – May 13 at 9:30 a.m.

Texas A&M University - Natural Resources Center
6300 Ocean Drive, Room 1003

Galveston – May 20 at 9:30 a.m.

Galveston County Courthouse
722 Moody Avenue, Workshop Room

Applicants were provided the opportunity to voluntarily submit a pre-proposal to receive project specific comments and recommendations. The CMP Review Team reviewed a total of 25 pre-proposals and provided comments to applicants to help strengthen their final application.

CMP Cycle #22 workshop dates and locations:

Port Isabel – May 11 at 9:30 a.m.

Artisan at Port Isabel
106 Port Road, Clubhouse

Corpus Christi – May 18 at 9:30 a.m.

Texas A&M University - Natural Resources Center
6300 Ocean Drive, Room 1003

Galveston – May 25 at 9:30 a.m.

Galveston County Courthouse
722 Moody Avenue, Workshop Room

For CMP Cycle #22, applicants were provided the opportunity to voluntarily submit a pre-proposal to receive project specific comments and recommendations from the CMP Review Team. The submittal deadline for pre-proposals was June 15, 2016. A total of 18 pre-proposals were received. The CMP Review Team reviewed the pre-proposals and provided comments to the applicants to help strengthen their final application. The deadline for final applications is September 21, 2016.

Project Success Stories

Galveston Bay Seafood Advisory Education Campaign



With CMP Cycle #18 funding, GBF educated Galveston Bay area subsistence and recreational fishermen about the risk of consuming seafood contaminated with toxic substances. Outreach efforts focused on low income areas in the

eastern part of Harris County with higher populations of Spanish speaking immigrants from Mexico and South America. GBF developed a prioritized list of popular recreational fishing areas and subsistence fishing areas. Selected locations reflect the highest incidence of use/highest risk of consumption of contaminated seafood. Signs were installed in both English and Spanish at 23

locations, notifying the public of applicable advisories issued by the Texas Department of State Health Services.

Shell Bank Improving Oyster Reef Restoration through Oyster Shell Recycling, Education and Scientific Inquiry



Oysters are valuable natural resources that provide numerous benefits to coastal environments, but their marine habitat is highly sensitive to degradation and human impact. Texas A&M-Corpus Christi (TAMU-CC), along with HRI, used CMP Cycle #18 funding to develop the Shell Bank Program. This program reclaims and recycles shells from restaurants and seafood wholesalers for use in oyster reef restoration projects in the Texas Coastal Bend. The program strives to educate the public and seeks science-based solutions to improve the sustainability of oysters in the Gulf of Mexico.



TAMU-CC and HRI reclaimed over 130,000 pounds of oyster shell from participating restaurants. During two community shell bagging events, 170 volunteers bagged 46,044 pounds of shell that were later used to build artificial reef habitat. TAMU-CC also created and installed an interactive educational kiosk module in one of the partner restaurants. The kiosk provides restaurant patrons with information to better understand the importance of oysters to marine ecosystems and the benefits of recycling oyster shell.

Boater Waste Education Campaign: Communicating Environmental Impact and Facilitating Enforcement

With CMP Cycle #18 funding, GBF created the Boater

Waste Education Campaign (BWEC) to educate the public on methods to decrease incidences of illegal discharge of boater sewage waste in the Galveston Bay Estuary. GBF created five different volunteer programs to communicate directly with boaters and marinas and relay the campaign message. Outreach materials emphasized the negative environmental and public health impacts caused by sewage, detailed how boaters can properly dispose waste and outlined the existing laws and fines associated with illegal boater discharge. Through various volunteer programs, GBF reached over 177,000 people at 52 outreach events and over 404,000 people through 13 media outlets. GBF plans to continue growing this program in the future.



Port Lavaca Causeway Fishing Pier Improvements



The Port Lavaca Fishing Pier is a remnant of the original two-lane State Highway 35 causeway over Lavaca Bay. Hurricane Carla destroyed portions of the

roadway in 1961, ending its use as a transportation route. In 1999 and 2003, fires destroyed approximately 1,800 linear feet of the pier, which was one of the longest public fishing piers along the Texas Gulf Coast. In previous CMP grant cycles, the City of Port Lavaca reconstructed 904 linear feet of the lighted, 10-foot wide pier. In CMP Cycle #18, the City built a lighted, 500 square-foot T-head at the bay end of the pier, completing the last phase of reconstruction. The T-head was built with marine-grade treated wood materials to ensure a useful life of at least 40 years. Student art classes and nature groups provide revolving displays for the visitors' kiosk to enhance the usefulness of the pier.

Henderson Street Nature Preserve



Over the next two decades, the population of Aransas County is expected to greatly increase, along with the destruction of valuable habitat. The County recognizes the need to preserve wildlife habitat and provide opportunities for the growing population to view native plant and animal species in a natural setting.

In previous grant cycles, Aransas County used CMP funding to purchase a 10-acre tract of undisturbed native live oak-red bay woodlands. In CMP Cycle #18, the County conducted low-impact enhancements of the woodland site to minimize impacts from human traffic, protect sensitive wildlife habitat, and enhance visitor experience.

The County removed approximately two acres of dense shrub overgrowth to allow for shallow natural swales, which provide food, cover, and nesting habitat for a variety of wildlife species. The County created two ponds, seeded with native grasses, to provide stable freshwater infiltration. Decades of accumulated debris was collected and hauled off the site. A crushed limestone trail was constructed and three primitive trails were enhanced, accommodating opportunities for passive recreation. A bird watching blind was constructed, and four bird drips were installed to provide a supply of freshwater for birds and other wildlife. A permeable parking lot was constructed. Benches and interpretive signage were installed to provide visitors the opportunity to learn about the site's flora and fauna and valuable natural resources.

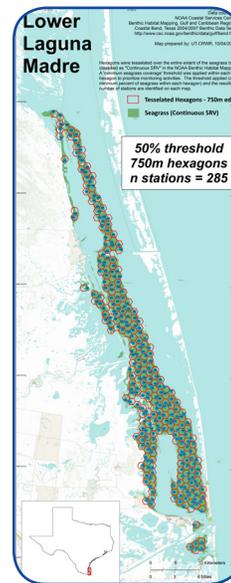


Over the next two decades, the population of Aransas County is expected to greatly increase, along with the destruction of valuable habitat. The County recognizes the need to preserve wildlife habitat and provide opportunities for the growing population to view native plant and animal species in a natural setting.

Tracking Long-Term Trends in Seagrass Cover and Condition in Texas Coastal Waters

In 1999, TPWD, along with the GLO and TCEQ drafted the Texas Seagrass Monitoring Plan to monitor changes in seagrass ecosystem conditions prior to actual seagrass mortality. To implement the plan, additional research was needed to identify physiological or morphological parameters that elicit a seagrass stress response.

With CMP Cycle #19 funding, the University of Texas at Austin developed protocols to evaluate seagrass conditions based on landscape-scale dynamics. This study used Tier 2 rapid assessment techniques to establish quantitative relationships between physical and biotic parameters that ultimately control seagrass conditions, distribution, persistence, and overall health. Sampling occurred at 138 stations in the Coastal Bend area, 144 stations in the Upper Laguna Madre, and 285 stations in the Lower Laguna Madre. The study found that seagrass assemblage covered approximately 79% of the bay floor and was relatively stable in the Coastal Bend area. In the Upper Laguna Madre, seagrass covered 72% of the bay floor and appeared to be experiencing a decline due to fluctuating temperatures, salinities, and nutrient concentrations in the Lower Laguna Madre.



Mustang Island Habitat Protection and Enhancement

The Mollie Beattie Coastal Habitat Community on Mustang Island protects coastal marshes, tidal flats, and seagrasses, providing habitat for Piping Plover and other shorebirds. Since 2001, CBBEP has improved public access and enhanced educational opportunities through

the construction of a parking area, installation of vehicular-restricting bollards and cables, and acquisition of adjacent habitat. Over the years, degradation and intentional destruction has reduced effectiveness of the barriers, allowing vehicles to damage valuable habitats.



With CMP Cycle #18 funding, CBBEP repaired and installed bollards and cables to prevent vehicular access to the 1,200-acre preserve. Existing driveways and parking areas were stabilized with a limestone road base to ensure safe access. Concrete debris was removed from the wetlands, enhancing coastal marsh and tidal flat habitat. Interpretative signage was installed to educate visitors about the flora, fauna, and the Packery Flats coastal habitat.

Emergency Vehicle Beach Access Improvement

Over five million people visit the City of South Padre Island each year. Large crowds in the spring and summer seasons create a higher probability for incidents and reduce maneuverability for emergency responders. Within the City, a mobile Beach Patrol monitors beach activities and provides rescue services, which requires reliable vehicular beach access.



In CMP Cycle #18, the City enhanced an existing public beach access point at Beach Circle through the installation of a 16-foot permanent concrete structure that allows emergency vehicles safe ingress and egress over the dunes and provides ADA

public access for pedestrians. The improvements enable the Beach Patrol to more effectively ensure public safety while creating a resilient and safe environment for vacationers, private and public infrastructure, and sensitive ecosystems.

Boater Waste Education Campaign: Gulf of Mexico Coastal Ocean Observing System

GBF's Citizen Science Data Portal was featured at the White House Water Summit in honor of World Water Day 2016. The portal aggregates information gathered from multiple sources and organizations throughout the Gulf region and makes the data publicly available for use in strategy development to protect the long-term health of the Gulf and its waterways. The portal is being piloted by three partner organizations and developed as a cost-effective way to gather localized information over long periods of time. This framework allows state, federal, and academic programs to supplement datasets and fill data gaps. Using standardized QA/QC practices that ensure data quality confidence and consistency, this tool allows organizations to address challenges inherent in integrating diverse datasets collected with different methodologies and instrumentation. The portal, which was partially funded by CMP Cycles #18 and #19, can be found online at <http://gcoos.org/products/>.

Cameron County Public Beach Access #4 Enhancements

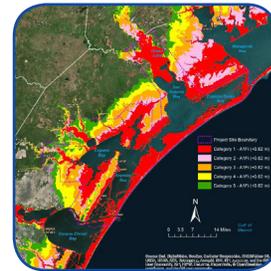


The Cameron County Parks and Recreation Department completed improvements to Beach Access #4, an area frequently used for swimming, fishing, picnicking, and sunbathing. To access the beach, visitors were required to transverse through

the foredune ridge, which adversely impacted the dune system and restricted access for persons with limited mobility. With CMP Cycle #19 funding, an ADA-compliant dune walkover was constructed to enhance public beach access and use and protect the dunes and dune vegetation. Educational signage was installed to inform visitors of the importance of sand dunes and encourage visitors to report sea turtle sightings.

Prioritization of Critical Marsh Conservation and Restoration Areas Based on Future Sea Level Rise Scenarios

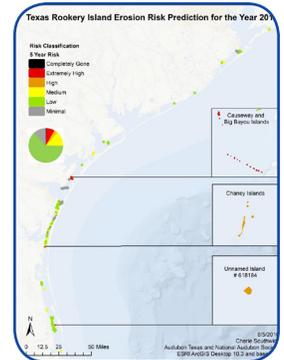
To reduce the risk of sea-level rise and storm-surge in Texas, The Nature Conservancy utilized the Sea-level Affecting Marsh Migration (SLAMM) model and high-resolution LiDAR data to produce a series of spatial indices for coastal restoration and protection of the San Antonio and Copano Bay estuarine systems. These indices were designed to promote healthy coastal ecosystems and identify nature-based solutions to sea level rise. The study captured the structural aspects of the area's coastal marsh habitats and assessed the migration of the marshes, due to sea level rise, over time. This project developed two online tools, the Sea-level Rise Portal and the Coastal Resilience Decision Support Tool, to distribute results and provide streamlined mapping platforms for coastal planners. The products made available through this project enhance sea level rise assessment capabilities for the area and help decision makers plan for a safer, more resilient Texas coast.



GIS Analysis and Modeling of Texas Rookery Island Erosion Risk along the GIWW

Texas colonial waterbirds depend on coastal dredge spoil islands to establish rookeries for nesting and rearing their young. Today, many dredge spoil islands located within the GIWW are heavily eroded by large ship wakes, altered shorelines, and sea level rise. The Texas Audubon Society examined the erosion rates of 186 rookery islands located within 2,500 meters of the GIWW along 10 coastal Texas counties from 2004 - 2014.

Islands were ranked by risk of becoming unusable to waterbirds within 5-year, 10-year, 25-year, and 50-year timeframes. The results of the analysis were compared to historical colonial waterbird data and ground-truthed for accuracy. Islands of high conservation-priority were identified using the island risk ranking and bird population densities of seven waterbird species common to the area of study. Research results indicate 15 Texas rookery island groups within 25 meters of the GIWW are at risk of completely disappearing within 50 years, 31 of which are predicted to experience a "medium" rate of erosion within 10 years. Several of the "high" erosion-risk islands serve as habitat for dense populations of waterbird species, including the Forster's tern and roseate spoonbill.



Tabbs Bay Enhancement Project

Tabbs Bay is a popular recreational waterfront destination with a rich history of oil exploration, on-shore and off-shore drilling, and devastating storms. Hurricanes



Alicia and Ike damaged the majority of the oil derricks, docks, and piers in Tabbs Bay, leaving defunct pilings scattered across the water. The resulting debris limited safe recreational use and hindered revitalization of the waterfront area. With CMP Cycle #19 funding, the City of Baytown removed 1,211 abandoned and derelict

pilings from Tabbs Bay to improve shoreline access, benefit and enhance public utilization, and aid ecotourism development.

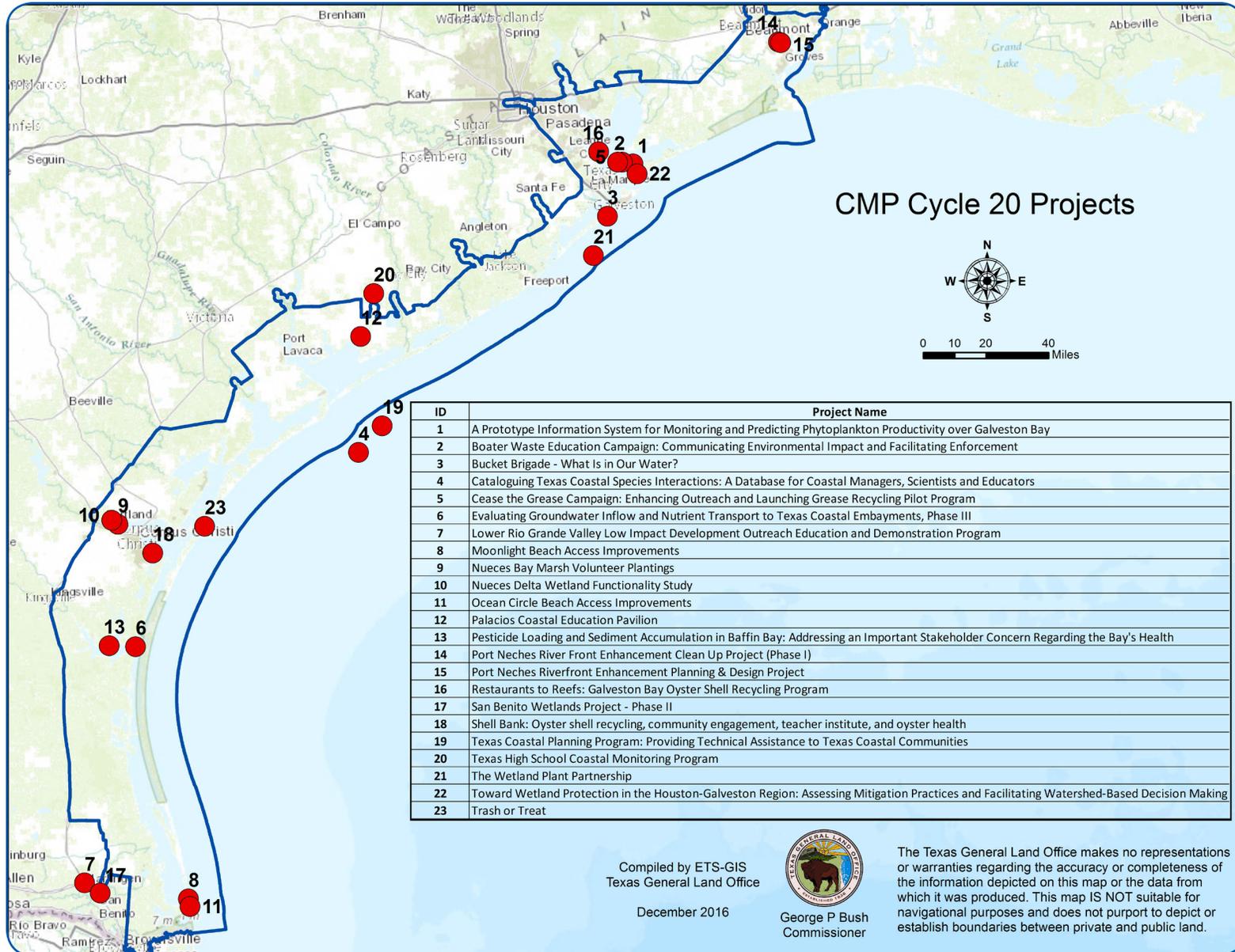
Grant Funding Breakdown



County	Cycle 20 FY 2015	Cycle 21 FY 2016	Total
Aransas	\$0.00	\$0.00	\$0.00
Brazoria	\$0.00	\$0.00	\$0.00
Calhoun	\$0.00	\$36,592.00	\$36,592.00
Cameron	\$442,157.00	\$199,956.00	\$642,113.00
Chambers	\$0.00	\$0.00	\$0.00
Galveston	\$211,227.00	\$210,000.00	\$421,227.00
Harris	\$140,000.00	\$340,125.00	\$480,125.00
Jackson	\$0.00	\$0.00	\$0.00
Jefferson	\$130,000.00	\$0.00	\$130,000.00
Kenedy	\$0.00	\$0.00	\$0.00
Kleberg	\$177,241.00	\$45,284.00	\$222,525.00
Matagorda	\$84,000.00	\$0.00	\$84,000.00
Nueces	\$227,330.00	\$281,916.00	\$509,246.00
Orange	\$0.00	\$0.00	\$0.00
Refugio	\$0.00	\$0.00	\$0.00
San Patricio	\$0.00	\$0.00	\$0.00
Victoria	\$0.00	\$0.00	\$0.00
Willacy	\$0.00	\$0.00	\$0.00
Coastwide	\$130,613.00	\$127,921.00	\$258,534.00
Lower Coast	\$0.00	\$498,206.00	\$498,206.00
Upper Coast	\$197,431.00	\$0.00	\$197,431.00
Total	\$1,739,999.00	\$1,740,000.00	\$3,479,999.00



Cycle 20 Projects



Compiled by ETS-GIS
Texas General Land Office

December 2016



George P Bush
Commissioner

The Texas General Land Office makes no representations or warranties regarding the accuracy or completeness of the information depicted on this map or the data from which it was produced. This map IS NOT suitable for navigational purposes and does not purport to depict or establish boundaries between private and public land.

Cameron

Lower Rio Grande Valley Low Impact Development Outreach Education and Demonstration Program

Texas A&M University-Kingsville (TAMUK) will design and construct a bioretention system to remove pollutants from stormwater runoff and improve water quality at a selected colonia in the Lower Rio Grande Valley. TAMUK will conduct stormwater sampling and monitoring to determine the effectiveness of the bioretention system and provide education and outreach to local stakeholders, developers, community leaders, and the general public.

CMP Funded: \$97,157.00
Match: \$63,973.00
Total Project: \$161,130.00
Contact: Dr. Kim Jones, P.E.
MSC 213
Kingsville, TX 78363
361.593.2187

Moonlight Beach Access Improvements

The City of South Padre Island will improve Moonlight Circle (Access Point #13) with the installation of an ADA-compliant dune walkover in place of the aging Mobi-mat currently installed. The walkover improvements will include drinking water and rinse stations. Installed plumbing will also be used to irrigate the surrounding dunes when needed.

CMP Funded: \$95,000.00
Match: \$95,000.00
Total Project: \$190,000.00
Contact: Mr. Brandon Hill
4601 Padre Blvd
South Padre Island, TX 78597
956.761.8166

Ocean Circle Beach Access Improvements

The City of South Padre Island will improve Ocean Circle (Access Point #2), a completely undeveloped access point located on the southern end of Gulf Boulevard. Construction of a new walkover will be instrumental in protecting the dune system and minimizing weak points that lead to gaps and washovers. In addition, a 28-space parking lot, sidewalk, drinking fountain, and rinse sta-

tion will be installed. The plumbing will also be used to irrigate the surrounding dunes when needed.

CMP Funded: \$150,000.00
Match: \$150,000.00
Total Project: \$300,000.00
Contact: Mr. Brandon Hill
4601 Padre Blvd
South Padre Island, TX 78597
956.761.8166

San Benito Wetlands Project - Phase II

Texas A&M AgriLife Extension Service, Texas Water Resources Institute (TWRI) will restore the remaining ten ponds at a 165-acre water treatment property along the banks of the Arroyo Colorado River. The ponds will treat nearby agricultural runoff. Evaporation and vegetation will reduce the amount of fresh water impacting the hypersaline seagrass ecosystem in the Laguna Madre.

CMP Funded: \$100,000.00
Match: \$73,000.00
Total Project: \$173,000.00
Contact: Mr. Jaime Flores
2401 E. Hwy. 83
Weslaco, TX 78596
956.969.5607

Coastwide

Texas Coastal Planning Program: Providing Technical Assistance to Texas Coastal Communities

Texas A&M University will support land-use and environmental-related planning in Texas coastal communities that lack the capacity or knowledge to effectively prepare for issues. Texas A&M University will provide training, tools, and assistance to facilitate the transformation from high-risk/low-opportunity to equitable, resilient, and adaptive, mitigating threats to the economy, environment, and culture.

CMP Funded: \$31,002.00
Match: \$20,667.00
Total Project: \$51,669.00
Contact: Ms. Heather Wade
6300 Ocean Drive, Unit 5869
Corpus Christi, TX 78412
361.205.7503

Cataloguing Texas Coastal Species Interactions: A Database for Coastal Managers, Scientists and Educators

TAMU-CC will complete the entry of species interaction data into the State of Texas Gulf of Mexico Species Interaction database. Upon project completion, Texas will be the first region in the Gulf Coast to have an accessible database containing all available species interaction data. This access will allow for better management decisions, better fisheries models, more accessible data for scientists and educators, and more information for Texas fishermen.

CMP Funded: \$31,536.00
Match: \$21,536.00
Total Project: \$53,072.00
Contact: Dr. James Simons
NRC Building, Suite 3200
6300 Ocean Drive
Corpus Christi, TX 78412
361.825.3223

Texas High School Coastal Monitoring Program

The University of Texas at Austin, Bureau of Economic Geology will engage students and teachers who live along the coast in the study of the natural beach environment. Middle and high school students, teachers, and scientists will work together to gain a better understanding of dune and beach dynamics. Students and teachers will learn how to measure the topography, recognize and map the vegetation line and shoreline, and observe weather and wave conditions. By participating in an actual research project, the students will obtain an enhanced science education. Furthermore, public awareness of coastal processes will be heightened, and the students' efforts will provide coastal communities with valuable data on the changing shoreline.

CMP Funded: \$68,075.00
Match: \$45,847.00
Total Project: \$113,922.00
Contact: Ms. Tiffany Caudle
University Station
Box X
Austin, TX 78713
512.475.9572

**Galveston
Boater Waste Education Campaign: Communicating
Environmental Impact and Facilitating Enforcement**

In CMP Cycle #20, GBF will refine the BVEC based on lessons learned from stakeholder feedback and preliminary water quality and survey data gathered in previous cycles. The project focus will be to outline a social media and web marketing distribution plan to expand and improve campaign communications; increase collaboration to improve data analysis used to determine campaign success; refine marina research sampling designs to reduce variance in data and improve the ability to compare long-term data in Marina Del Sol and Lakewood Yacht Club; increase the number of agency partners tied into and number of citizens using the Galveston Bay Action Network (GBAN) mobile app to increase the quantity and quality of reporting and facilitate more streamlined and focused enforcement efforts by agency partners; and collect and analyze additional Dockwalker survey data to better understand knowledge gaps and garner additional stakeholder support for a federal No Discharge Zone in Galveston Bay.

CMP Funded: \$60,000.00
Match: \$41,092.00
Total Project: \$101,092.00
Contact: Mr. Nathan Johnson
 1100 Hercules Avenue, Suite 200
 Houston, TX 77058
 281.332.3381 x215

**Cease the Grease Campaign: Enhancing Outreach and
Launching Grease Recycling Pilot Program**

Texas A&M University-Kingsville (TAMUK) will design and construct a bioretention system to remove pollutants from stormwater runoff and improve water quality at a selected colonia in the Lower Rio Grande Valley. TAMUK will conduct stormwater sampling and monitoring to determine the effectiveness of the bioretention system and provide education and outreach to local stakeholders, developers, community leaders, and the general public.

CMP Funded: \$55,752.00
Match: \$37,188.00
Total Project: \$92,940.00

Contact: Mr. Nathan Johnson
 1100 Hercules Avenue, Suite 200
 Houston, TX 77058
 281.332.3381 x215

**A Prototype Information System for Monitoring and
Predicting Phytoplankton Productivity over Galveston
Bay**

The Texas A&M Engineering Experiment Station will create a prototype phytoplankton productivity information system over Galveston Bay to aid decision makers with the capability of maintaining coastal ecosystem health. The prototype information system will include monitoring phytoplankton productivity through satellite remote sensing and predicting phytoplankton productivity using state-of-the-art modeling capabilities. The model will be given the capability to conduct phytoplankton seasonal forecasting driven by predicted seasonal weather forecasts from the National Centers for Environmental Prediction Climate Forecast System.

CMP Funded: \$95,475.00
Match: \$63,650.00
Total Project: \$159,125.00
Contact: Dr. Huilin Gao
 3136 TAMU
 College Station, TX 77843
 979.845.2875

**Harris
Restaurants to Reefs: Galveston Bay Oyster Shell
Recycling Program**

GBF will reclaim spent oyster shell from local seafood restaurants and properly cure the shell in preparation for reuse in oyster reef restoration work in Galveston Bay. Shell obtained from the program is used for (separately funded) projects that benefit ecosystem services of Galveston Bay and the health and sustainability of the native oyster population.

CMP Funded: \$40,000.00
Match: \$26,668.00
Total Project: \$66,668.00
Contact: Mr. Philip Smith
 1100 Hercules Avenue, Suite 200
 Houston, TX 77058
 281.332.3381 x210

**Toward Wetland Protection in the Houston-Galveston
Region: Assessing Mitigation Practices and Facilitating
Watershed-Based Decision Making**

The GeoTechnology Research Institute will analyze 404 permit records (2008 - 2015) to examine the success of mitigation sites. The project team will use historical aerial photographs and descriptions of the area to compare ecological conditions within the mitigation site to conditions present prior to permit activities. Results will be presented at a stakeholder meeting for government agencies and non-profit organizations, in the final report, and in publications.

CMP Funded: \$100,000.00
Match: \$66,835.00
Total Project: \$166,835.00
Contact: Ms. Lisa Gonzalez
 4800 Research Forest Drive
 The Woodlands, TX 77381
 281.364.6044

**Jefferson
Port Neches Riverfront Enhancement Planning &
Design Project**

The City of Port Neches will prepare a comprehensive plan for developing the riverfront. The plan will identify "construction-ready" projects, allowing the City to proceed with revitalization efforts as funding opportunities arise. The plan will be consistent with CMP objectives for waterfront revitalization to increase shoreline accessibility to the coastal zone, enhance recreational utilization, and improve public enjoyment.

CMP Funded: \$45,000.00
Match: \$30,000.00
Total Project: \$75,000.00
Contact: Mr. Taylor Shelton
 1005 Merriman
 or PO Box 758
 Port Neches, TX 77651
 409.719.4204

**Port Neches River Front Enhancement Clean Up
Project (Phase I)**

The City of Port Neches will clean-up the riverfront, removing derelict structures and debris that constitute an impediment to safe recreational boating, tanker/barge

traffic, and general public use.

CMP Funded: \$85,000.00
Match: \$65,000.00
Total Project: \$150,000.00
Contact: Dr. Kim Jones, P.E.
Mr. Taylor Shelton
1005 Merriman
or PO Box 758
Port Neches, TX 77651
409.719.4204

Kleberg **Evaluating Groundwater Inflow and Nutrient Transport to Texas Coastal Embayments, Phase III**

TAMU-CC will conduct a study to advance the understanding of groundwater inflows and nutrient transport to bay systems in South Texas for improved environmental flow recommendations and nutrient criteria. Groundwater discharge will be explicitly incorporated into the freshwater inflow needs and nutrient budgets. The project builds upon current efforts to estimate freshwater and nutrient contributions from groundwater to the Nueces, Laguna Madre, and Aransas estuaries.

CMP Funded: \$99,400.00
Match: \$66,414.00
Total Project: \$165,814.00
Contact: Dr. Dorina Murgulet
6300 Ocean Drive, Unit 5850
Corpus Christi, TX 78412
361.825.2309

Pesticide loading and sediment accumulation in Baffin Bay: Addressing an Important Stakeholder Concern Regarding the Bay's Health

TAMU-CC will coordinate with principle investigators to integrate pesticide sampling into existing water quality sampling methods. Samples collected will be analyzed for concentrations of legacy and current-use pesticides in Baffin Bay water, sediment, and dwarf surf clam tissues. This research will quantify loading and the accumulation of pesticides and assess the impacts on the dwarf surf clam and the economically important black drum. Ultimately, this research will provide a critical parameter needed to fully assess water pollution impacts on the ecosystem health of Baffin Bay.

CMP Funded: \$77,841.00
Match: \$51,944.00
Total Project: \$129,785.00
Contact: Dr. Jeremy Conkle
6300 Ocean Drive, Unit 5869
Corpus Christi, TX 78412
361.825.2862

Matagorda **Palacios Coastal Education Pavilion**

The City of Palacios will construct a new pavilion to re-establish a historic community icon and help revitalize the City. As a multi-use community venue, the pavilion will be used to promote education and enhance tourism.

CMP Funded: \$84,000.00
Match: \$56,000.00
Total Project: \$140,000.00
Contact: Ms. Jackie Jones
311 Henderson
Palacios, TX 77465
361.972.3605

Nueces **Trash or Treat**

The University of Texas at Austin will coordinate clean-up events on Mustang Island to educate the South Texas coastal community on the impacts of marine debris and encourage actions that mitigate damage to the region's coastal environments.

CMP Funded: \$19,694.00
Match: \$13,015.00
Total Project: \$32,709.00
Contact: Ms. Sara Pelleteri
UTMSI
750 Channel View Drive
Port Aransas, TX 78373
361.749.6764

Nueces Delta Wetland Functionality Study

TAMU-CC will assess the structure of the benthic community, phytoplankton, zooplankton, and fishes using trophic linkage assessment by multiple stable isotopes. This assessment is necessary to understand how effective the implementation of management recommenda-

tions and activities have been since the connectivity of the Nueces Estuary and the Nueces Delta.

CMP Funded: \$88,997.00
Match: \$61,159.00
Total Project: \$150,156.00
Contact: Dr. Paul Zimba
6300 Ocean Drive, Unit 5866
Corpus Christi, TX 78412
361.825.2768

Shell Bank: Oyster Shell Recycling, Community Engagement, Teacher Institute, and Oyster Health

TAMU-CC will continue the oyster shell recycling program. TAMU-CC developed the program to reclaim discarded oyster shell from local area restaurants, seafood wholesalers and festivals and return the shells to coastal bend bays to restore degraded habitat. TAMU-CC will expand oyster shell collection, host community-based restoration events, provide training to local school teachers, and monitor the success of alternative reef restoration materials used at current restoration sites.

CMP Funded: \$99,289.00
Match: \$67,150.00
Total Project: \$166,439.00
Contact: Dr. Jennifer Pollack
6300 Ocean Drive, Unit 5860
Corpus Christi, TX 78412
361.825.2041

Nueces Bay Marsh Volunteer Plantings

CBBEP will implement volunteer marsh plantings at the Nueces Bay Marsh Project site. CBBEP will re-vegetate areas that were not successful during past events and plant smooth cordgrass along the fringe of the terraces to further enhance the marsh site. CBBEP will acquire a permit from TPWD to introduce smooth cordgrass (*Spartina alterniflora*) to the project site. CBBEP will contract with the Coastal Bend Bays Foundation to coordinate and supply volunteers and event day set-up.

CMP Funded: \$19,350.00
Match: \$12,900.00
Total Project: \$32,250.00
Contact: Ms. Rosario Martinez
1305 N. Shoreline Blvd., Ste 205

Corpus Christi, TX 78401
361.885.6202

Upper Coast

Bucket Brigade - What is in our water?

The Artist Boat, Inc. will engage 100,000 - 200,000 beachgoers of all ages on Galveston Island in place-based learning events. The project seeks to improve perceptions and attitudes toward water and sediment quantity and quality on Texas gulf waters and beaches. Artist Boat will promote increased actions at home to improve water quality.

CMP Funded: \$99,816.00
Match: \$111,371.00
Total Project: \$211,187.00
Contact: Mrs. Karla Klay
2415 Avenue K
Galveston, TX 77550
409.770.0722

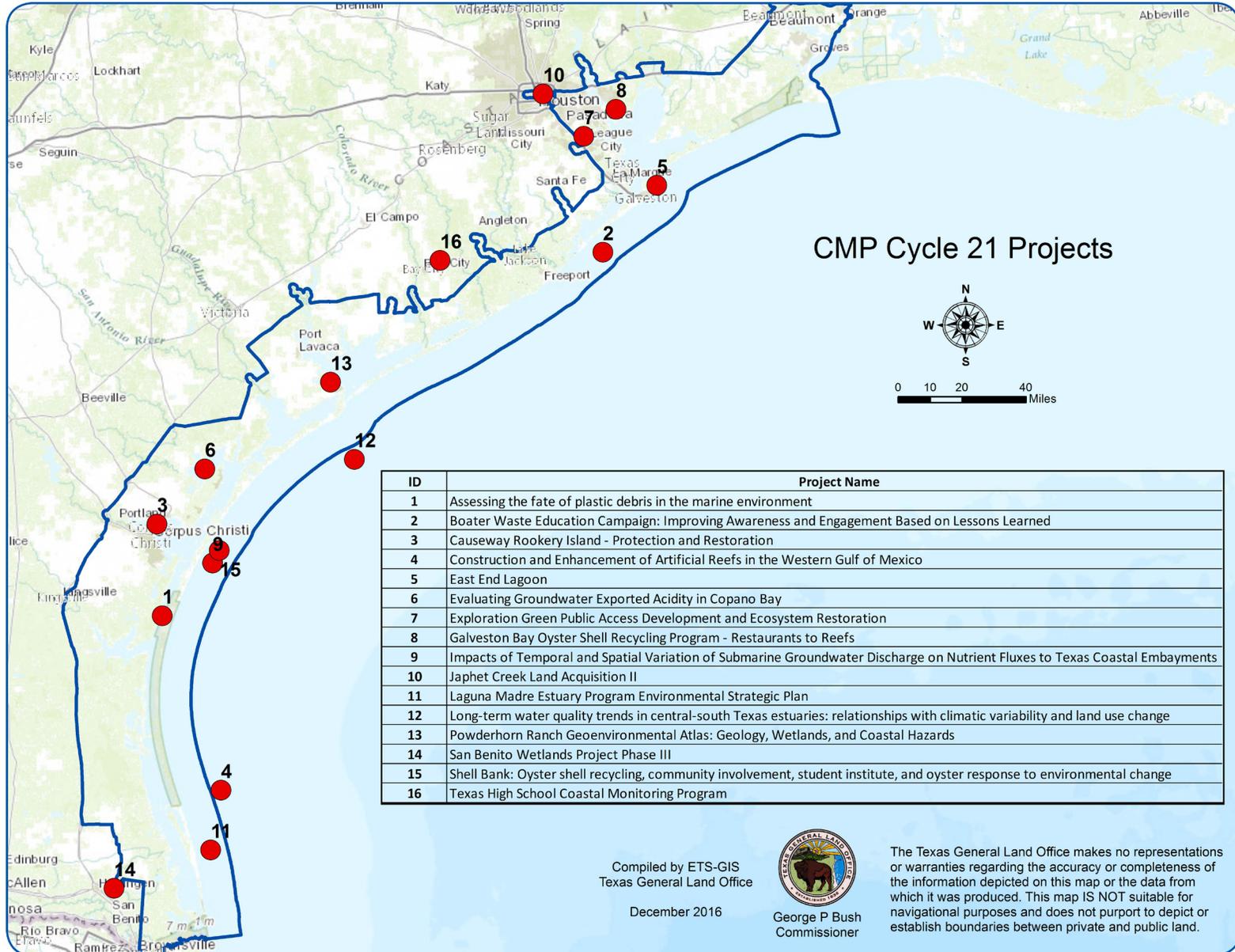
The Wetland Plant Partnership

Texas A&M AgriLife Extension Service will design and construct stormwater wetland demonstration projects in Galveston, Brazoria and Harris counties, a three-county region that contributes flows to Galveston Bay. The

project includes the construction of a plant nursery, which will be used to provide stock for the stormwater wetland demonstration projects and educate students and volunteers on the values of wetlands.

CMP Funded: \$97,615.00
Match: \$65,968.00
Total Project: \$163,583.00
Contact: Dr. John Jacob
1250 Bay Area Boulevard, Suite C
Houston, TX 77058
281.218.6352

Cycle 21 Projects



**Calhoun
Powderhorn Ranch Geoenvironmental Atlas: Geology,
Wetlands, and Coastal Hazards**

The University of Texas, Bureau of Economic Geology will create a geoenvironmental atlas for Powderhorn Ranch in Calhoun County. The atlas will serve as a foundation, providing planners, managers, conservationists, and users a detailed guide to the geologic, geomorphic, coastal habitat, and coastal hazard characteristics of the 17,351-acre parcel. As one of the largest remaining tracts of native coastal prairie, Powderhorn Ranch is expected to become a state park and wildlife management area.

CMP Funded: \$36,592.00
Match: \$12,281.53
Total Project: \$48,873.53
Contact: Dr. Jeffrey Paine
 University Station, Box X
 Austin, TX 78713
 512.471.1260

**Cameron
Laguna Madre Estuary Program Environmental
Strategic Plan**

TAMUK is leading a partnered effort to establish an estuary program in the Lower Rio Grande Valley. With CMP Cycle #21 funding, TAMUK will create a Lower Laguna Madre Estuary Program Partnership and deliver a strategic plan that includes techniques, tools, and critical information to assist coastal and watershed communities in understanding vulnerabilities related to water quality, ecosystem health, and resilience.

CMP Funded: \$99,956.46
Match: \$99,964.27
Total Project: \$199,920.73
Contact: Dr. Kim Jones, P.E.
 MSC 213
 Kingsville, TX 78363
 361.593.2187

San Benito Wetlands Project Phase 3

In 2012, TWRI initiated a wastewater reuse and tertiary treatment project with the cities of Harlingen and San Benito. In Phases 1 and 2 of the project, TWRI installed

pipings to recondition a 165-acre site, increasing wastewater treatment at the wetland polishing cells and improving the site's native wetland areas. In Phase 3, TWRI will use CMP Cycle #21 funding to install infrastructure needed to divert treated effluent into three 10-acre settling/evaporation ponds, renovate a pier to facilitate public access and environmental education, restore native wetland and riparian habitat, and conduct water quality monitoring. TWRI will conduct at least three workshops to educate the public and community leaders on the importance of wetlands and provide information about the project.

CMP Funded: \$100,000.00
Match: \$100,000.07
Total Project: \$200,000.07
Contact: Mr. Jaime Flores
 2401 E. Hwy. 83
 Weslaco, TX 78596
 956.969.5607

**Coastwide
Long-Term Water Quality Trends in Central-South
Texas Estuaries: Relationships with Climatic
Variability and Land Use Change**

TAMU-CC will quantify long-term water quality trends along the central-south Texas coast and determine potential drivers of water quality change. Project findings may support efforts to develop proactive water resource management strategies based on projections of future population and climate trends. Project results will be conveyed to managers and relevant community stakeholder groups through data reports and presentations.

CMP Funded: \$52,545.00
Match: \$53,020.42
Total Project: \$105,565.42
Contact: Dr. Michael Wetz
 6300 Ocean Dr, Unit 5860
 Corpus Christi, TX 78412
 361.825.2132

Texas High School Coastal Monitoring Program

The University of Texas at Austin, Bureau of Economic Geology will engage students and teachers who live along the coast in the study of the natural beach en-

vironment. Middle and high school students, teachers, and scientists will work together to gain a better understanding of dune and beach dynamics. Students and teachers will learn how to measure the topography, recognize and map the vegetation line and shoreline, and observe weather and wave conditions. By participating in an actual research project, the students will obtain an enhanced science education. Furthermore, public awareness of coastal processes will be heightened, and the students' efforts will provide coastal communities with valuable data on the changing shoreline.

CMP Funded: \$75,376.17
Match: \$30,961.63
Total Project: \$106,337.80
Contact: Ms. Tiffany Caudle
 University Station, Box X,
 Austin, TX 78713
 512.475.9572

**Galveston
Boater Waste Education Campaign: Improving
Awareness and Engagement Based on Lessons
Learned**

In CMP Cycle #21, GBF will refine the BWEC based on lessons learned, improve the Interactive Pump-Out map, implement enhanced marketing and outreach efforts, and track program improvements. GBF will continue to maintain the licensing, authority partnerships, improvements, and citizen outreach to ensure GBAN remains a successful tool for reporting illegal dumping to the authorities. GBF anticipates the project will result in an increased awareness of pump-out stations around the Bay, a stronger understanding of bacteria sources in marinas, improved pump-out station best management practices, and increased reporting of illegal dumping through GBAN.

CMP Funded: \$75,000.00
Match: \$25,000.00
Total Project: \$100,000.00
Contact: Mr. Nathan Johnson
 1100 Hercules Avenue, Suite 200
 Houston, TX 77058
 281.332.3381 x215

East End Lagoon

The Galveston Island Park Board of Trustees will delineate wetland and upland areas and construct an approximately 2,500 linear-foot, ADA-compliant interpretative trail within the East End Lagoon on Galveston Island. The project is a component of a larger initiative to enhance and protect the Lagoon from uncontrolled access and misuse.

CMP Funded: \$135,000.00
Match: \$45,000.00
Total Project: \$180,000.00
Contact: Ms. Sheryl Rozier
601 Tremont, Suite 200
Galveston, TX 77550
409.797.5138

Harris

Japhet Creek Land Acquisition II

The Buffalo Bayou Partnership will acquire a .54-acre property along Japhet Creek and transfer the title to the Houston Parks and Recreation Department for long-term monitoring. By purchasing the property, more than 5.7 acres of land along Japhet Creek will be assembled in fulfillment of the Buffalo Bayou and Beyond Master Plan, which seeks to transform Buffalo Bayou into an ecologically functioning and pedestrian-friendly waterway.

CMP Funded: \$190,125.00
Match: \$63,375.00
Total Project: \$253,500.00
Contact: Ms. Anne Olson
1019 Commerce Street, Suite 200
Houston, TX 77002
713.752.0314

Galveston Bay Oyster Shell Recycling Program - Restaurants to Reefs

GBF will continue the Galveston Bay Oyster Shell Recycling Program, a program that reclaims spent oyster shell from local seafood restaurants and properly cures the shell in preparation for reuse in local oyster reef restoration projects. GBF will enhance the program through new collection and storage methods, increased restaurant participation, and new outreach programs/materials.

CMP Funded: \$50,000.00
Match: \$50,000.00
Total Project: \$100,000.00
Contact: Ms. Haille Carter
1100 Hercules Avenue, Suite 200
Houston, TX 77058
281.332.3381 x203

Exploration Green Public Access Development and Ecosystem Restoration

GBF will construct a one-mile stretch of hike and bike trail, install an irrigation system, and plant native trees, grasses, and shrubs at Exploration Green in Harris County. The project will enhance public accessibility to a coastal wildlife habitat and allow natural wetland habitats to filter storm water runoff, improving local environmental conditions.

CMP Funded: \$100,000.00
Match: \$100,000.00
Total Project: \$200,000.00
Contact: Mr. Matthew Singer
1100 Hercules Avenue, Suite 200
Houston, TX 77058
281.332.3381 x206

Kleberg

Assessing the Fate of Plastic Debris in the Marine Environment

TAMU-CC will assess the fate of plastic debris in the Laguna Madre and increase public awareness of how plastic disposal in coastal watersheds impacts the health of ecosystems. TAMU-CC will quantify plastic biodegradation in the marine environment, identify species of algae and bacteria that colonize plastic debris, identify genes that play a direct role in biodegradation, document the microbial colonization and biodegradation, and develop an educational module aimed at minimizing the use of single-use plastics. Project results will advance understanding of plastic fate in the marine environment.

CMP Funded: \$45,284.06
Match: \$20,000.00
Total Project: \$65,284.06
Contact: Dr. Jeffrey Turner
6300 Ocean Drive, Unit 5858

Corpus Christi, TX 78412
361.825.6206

Lower Coast

Construction and Enhancement of Artificial Reefs in the Western Gulf of Mexico

TPWD will create artificial reef habitat at the Rio Grande Valley Reef Site in the Gulf of Mexico. Concrete, limestone, and shell will be placed in varying configurations to create low relief habitat for juvenile fish. Larger, more complex materials will be placed across the center region to yield mid-relief habitat for larger, adult fish. If funds and time allow, a vessel may be placed in the deepest region of the reef site to create high relief reef habitat. The project will enhance habitat for fisheries, build important fishery stocks, and provide increased fishing and diving opportunities.

CMP Funded: \$400,000.00
Match: \$400,000.00
Total Project: \$800,000.00
Contact: Dr. Brooke Shipley
4200 Smith School Road
Austin, TX 78744
281.534.0112

Evaluating Groundwater Exported Acidity in Copano Bay

TAMU-CC will study the contribution of groundwater inputs to decreased marine alkalinity in Copano Bay. TAMU-CC will quantify groundwater discharge and reduced sulfur export on a seasonal basis in selected groundwater discharge sites and construct the relationship between alkalinity drawdown and acid export using biweekly surveyed surface water data. Project results will help resource managers to direct appropriate resources for restoration purposes to combat alkalinity loss and maintain healthy ecosystem functions in environmentally sensitive estuaries.

CMP Funded: \$98,206.00
Match: \$98,209.22
Total Project: \$196,415.22
Contact: Dr. Xinping Hu
6300 Ocean Drive, Unit 5860
Corpus Christi, TX 78412
361.825.3395

Nueces Causeway Rookery Island - Protection and Restoration

CBBEP will address actions needed to protect important rookery island habitat from wind and wave erosion at Causeway Island in Nueces County. CBBEP previously installed a geotextile tube to protect the north side of the Island from erosion. In 2014, the geotextile tube failed, exposing the shoreline to wave energy and resulting in approximately 45 feet of shoreline erosion in less than a year. CBBEP will use CMP Cycle #21 funding to obtain aerial imagery, prepare an alternatives analysis, and complete preliminary engineering and 70% construction drawings for a structure that protects the north side of the Island from wave action and traps sediment from future beneficial use projects. The project will help restore and re-establish a healthy colonial waterbird population in the Coastal Bend.

CMP Funded: \$90,000.00
Match: \$30,000.00
Total Project: \$120,000.00
Contact: Ms. Rosario Martinez
 615 N. Upper Broadway, Suite 1200
 Corpus Christi, TX 78401
 631.885.6202

Impacts of Temporal and Spatial Variation of Submarine Groundwater Discharge on Nutrient Fluxes to Texas Coastal Embayments

TAMU-CC will generate information related to groundwater discharge rates to improve environmental flow recommendations and nutrient criteria in south Texas estuaries. Project objectives include: 1) characterizing the spatial-temporal variation of submarine groundwater discharge rates and nutrient discharge rates; 2) evaluating the role of subsurface heterogeneity in submarine groundwater discharge and nutrient discharge in system-wide nutrient budgets; and 3) understanding the main sources of freshwater inflow and nutrients to the Nueces Estuary. The project will increase understanding of nutrient dynamics in Texas estuaries, help set nutrient criteria, and improve calibration of groundwater availability models.

CMP Funded: \$92,747.00
Match: \$92,750.09
Total Project: \$185,497.09
Contact: Dr. Dorina Murgulet
 6300 Ocean Drive, Unit 5850
 Corpus Christi, TX 78412
 361.825.2309

Shell Bank: Oyster Shell Recycling, Community Involvement, Student Institute, and Oyster Response to Environmental Change

TAMU-CC will continue the oyster shell recycling program. TAMU-CC developed the program to reclaim and recycle shucked oyster shells from Coastal Bend restaurants, seafood wholesalers, and seafood festivals for use in reef restoration. At two community-based oyster restoration events, volunteers will fill mesh bags with reclaimed oyster shells to create reef building blocks. In the future, the shell bags will be used to build oyster reef at Goose Island State Park to protect and stabilize the eroding marsh for living shoreline restoration activities. TAMU-CC will develop and offer habitat conservation and restoration-based modules for students and detect and define the effects of environmental stressors on oyster growth.

CMP Funded: \$99,169.00
Match: \$99,215.13
Total Project: \$198,384.13
Contact: Dr. Jennifer Pollack
 6300 Ocean Drive, Unit 5860
 Corpus Christi, TX 78412
 361.825.2041

Education and Outreach



Various publications are created and distributed to educate the public about coastal issues and the technology available to aid in the protection and improved management of CNRAs. Publications are evaluated and updated as needed to fill information gaps and reflect current areas of focus on the coast.

Reports

Texas Coastal Management Program 2015-2016 Biennial Report

A biennial report published for the Texas Legislature that includes CMP program initiatives, updates on the total number of consistency reviews conducted, PSC activities, and reports on the grant program.

CEPRA Report to the 85th Texas Legislature

A report submitted to the Texas Legislature summarizing critical erosion areas, erosion response projects, and economic and natural resource benefits.

Coastwide Erosion Response Plan

A report that identifies critical coastal erosion areas and prioritizes coastal erosion response studies.

Texas Coastal Resiliency Master Plan

A long-term framework intended to mitigate damage from future coastal natural disasters and preserve and enhance the state's coastal natural resources and assets.

Technical Mitigation of the Storm Surge Suppression Study Report

A report that examines the feasibility of reducing the vulnerability of the upper Texas coast to storm surge and flood damages to protect the life, health, and safety of the community and provide environmental and economic resilience.

Texas Coastal Infrastructure Study

A report that identifies the critical infrastructure assets most vulnerable to storm impacts to aid communities

in the event of future storm events.

Coastal Texas Protection and Restoration Study

A report that analyzes USACE's interest in conducting a feasibility study related to coastal storm risk management and ecosystem restoration along the Texas coast.

Guidebooks, Manuals, Brochures, etc.

Dune Protection and Improvement Manual for the Texas Gulf Coast, Fifth Edition

A manual providing guidelines for coastal municipalities, counties, and home owners for construction subject to the OBA and DPA, August 2005. (Available online only)

Texas Beach Accessibility Guide

A guide for local governments adopting and implementing beach accessibility measures for persons with disabilities, January 2011. (Available online only)

Texas Beaches and Dunes Poster

An informational poster that depicts dune anatomy and identifies flora and fauna present in intertidal and subtidal zones and dune areas.

Texas Coastal Treasures Poster

An informational poster that depicts flora and fauna present along Texas coastal beaches.

Texas Coastal Wetlands Poster

An informational poster that depicts and identifies flora and fauna present in Texas coastal wetlands.

Texas Homeowner's Handbook to Prepare for Coastal Natural Hazards

A handbook, developed with Texas Sea Grant, advising homeowners on methods to protect people and property from natural disasters. The handbook explains the importance of flood insurance and provides useful web links and disaster preparation checklists, March 2013. (Available online and in Spanish)

Texas Submerged Lands Poster

An informational poster that depicts and identifies flora and fauna indigenous to Texas submerged lands.

Shoring Up the Future for the Texas Gulf Coast

An overview report that highlights the ecologic and economic features along the Texas coast and identifies the primary IOCs threatening sustainability, August 2016.

2017 Treasures of the Texas Coast Calendar

A twelve-month calendar printed and distributed by the Adopt-A-Beach program to promote the annual children's art contest, raise public awareness of the importance of the Texas coast, and educate citizens about the harmful impacts of marine debris, November 2016.

Newsletters

Adopt-A-Beach Newsletter

A newsletter that features news and information about past and future clean-ups, program initiatives, and the children's art contest.

The Cabin Connection Newsletter

A newsletter that features articles about publicly leased cabins built on state-owned submerged land as well as articles submitted by cabin permit holders.

The Responder Newsletter

A newsletter that features news and information about oil spill program response and education activities.

Websites

<http://www.glo.texas.gov/energy-business/oil-gas/mineral-leasing/leasing/keyword-search/index.cfm> allows users to search for RMCs, providing the best available information on natural resource concerns that may be associated with leasing state-owned land tracts and assisting with project planning efforts.

<http://www.glo.texas.gov/land/land-management/gis/index.html> links to dynamic interactive mapping

websites, providing access to a vast collection of coastal data.

<http://www.glo.texas.gov/coastal-grants/#search>, a user-friendly, searchable website that provides information for coastal grant projects funded along the Texas coast.

www.txcoasts.com provides a location-enabled mapping function with turn-by-turn directions to more than 600 destinations along the Texas coast. The application integrates with Facebook and Twitter, allowing users to share vacation plans with friends and family.

<http://texasbeachwatch.com/> provides the public with information about water quality at selected recreational beaches along the Texas coast in Aransas, Brazoria, Cameron, Galveston, Jefferson, Kleberg, Matagorda, Nueces, and San Patricio counties.

<http://coastal.beg.utexas.edu/shorelinechange/> provides long-term historical shoreline change rates of the Texas coast.

<http://coast.noaa.gov/digitalcoast/> provides coastal data, tools, and training for the coastal management community. Content is derived from several sources and is vetted by NOAA.

<http://gisweb.glo.texas.gov/txsed/index.html> provides sediment related geospatial and geotechnical data, which may be used for proposed beach nourishment and habitat restoration projects to assist in identifying compatible sediment resources or as an aid in the permitting/regulatory process.

<http://www.glo.texas.gov/ost/>, a response toolkit that houses all Area Contingency Plans within U.S. Coast Guard District 8, Regional Response Team guidance and documents, Response Plans, NOAA Job Aids, SCAT Forms, Internet links, and oceanographic and meteorological information.

<http://gisweb.glo.texas.gov/storm/index.html>, an oil spill mapping viewer that provides weather information and tools.

<http://gisweb.glo.texas.gov/glomap/index.html>, an interactive land lease mapping program that provides access to vast collections of land and energy related data, including upland and submerged Original Texas Land Survey boundaries, Permanent School Fund land, upland and coastal leases, oil and gas well locations, and current imagery.

<https://tnris.org/> provides a collection of maps, photos, documents and other spatial datasets acquired from multiple sources, including state, federal, and local agencies.

<http://www.cbi.tamucc.edu/CHRGIS/>, an interactive, online archive, qualitative analysis, and mapping tool that provides visualization of beach profile survey data and aerial imagery from the CEPRA Program, in support of the Beach Monitoring and Maintenance Plan.

<http://sspeed.rice.edu/sspeed/> provides information to facilitate the creation and dissemination of knowledge to better address severe storm impacts and evacuation strategies in the Gulf Coast area.

Coastal GIS Data Sets

Texas Coastal Sediments Geodatabase (TxSed) is a systematic inventory and clearinghouse of sediment samples and related geotechnical information for the Texas coast. The TxSed project coordinates existing efforts and facilitates the integration of historical sampling data from the GLO, USACE-Galveston District, relevant port authorities, universities, engineering firms, and other local, state, and federal entities. The primary users of TxSed are resource managers within governmental agencies or non-profit organizations, as well as engineering firms interested in identifying compatible sediment sources for proposed beach nourishment or habitat restoration projects. In addition, the project aids in the permitting/regulatory process and reduces the cost of initial data search and collection for such projects.

Coastal Grants and Projects Geodatabase (CGAP) is a spatial database (similar to TxSed) that stores all GLO-administered coastal projects. This database could include projects by other federal, state, local, and

non-governmental entities. When completed, CGAP will be an efficient geospatial infrastructure for assisting future coastal planning efforts, through data query, mapping, and spatial analysis of various types of coastal projects (construction vs. study, mitigation, restoration, etc.).

Texas Coastal Access Points Geodatabase (TxCoasts) is a spatial database and web application of all beach and bay access points along Texas coast. The initial effort to compile and distribute the very popular Texas Beach & Bay Access Guide was conducted between 1989 and 1999. The publication was revised in 2003. The information was distributed in a static format (hard-copy publication and, later, on CD). Updates to a hard-copy version require a new printing run. Since the last update, ten years ago, technology, the coast, and Texas have changed tremendously. The advent and popularity of mobile devices have changed how people access data. These factors, combined with the creation or loss of beach access sites, population growth, and increases in tourism, all necessitate updates to the guide, and publication of the data in a self-contained, dynamic, interactive, and platform-agnostic web application (TxCoasts.com).

Offshore Structures Inventory is a cooperative effort between Coastal Resources, Oil Spill Prevention & Response, GIS, Construction Services, and Energy Resources to identify, verify, and catalog all hazardous derelict structures in state waters (bays and the Gulf of Mexico, out to the extent of state jurisdiction). The structures are contained in an online mapping viewer and mobile data collection application, which field staff uses to enter information and photos of structures during field reconnaissance. The data is used to locate responsible parties or otherwise fund the removal of the derelict structures.

Coastal County Parcel Data provides the GLO's Beach/Dune team and coastal field offices with property owner information for the coastal counties. The GIS team acquired and processed county parcel data for all coastal counties, except Kennedy and San Patricio, as well as the City of Corpus Christi, which is in progress. Data will be provided to GLO staff in Google Earth format,

to overlay with historical aerial imagery, for permitting purposes.

Resource Management Codes are assigned to state-owned tracts in Texas bays and estuaries, and Gulf of Mexico waters, representing development guidelines for activities within the tracts. RMCs protect sensitive natural resources, providing recommendations for minimizing adverse impacts from mineral exploration and

development activities. RMCs are based on the recommendations from several federal and state resource agencies, including U.S. Fish and Wildlife Service, National Marine Fisheries Service, TPWD, Texas Historical Commission, and USACE, all of whom rely on the best available information and datasets of natural resources in the area. The GLO serves as custodian of the RMC database and uses the codes to assist potential bidders with project planning efforts.

USACE Texas Shipping Channels is an updated coastal shipping channels dataset acquired from the USACE-Galveston District. The GLO is reviewing the attributes and channel lines for compatibility with agency data and determining if updates/improvements were made. The data layer will be incorporated into the GLO's central GIS data repository.

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